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**SUPPLEMENT
22 JANUARY 1951**

SUPPLEMENT TO TM 11-947 POWER UNIT PE-210

The following information, published on Order No. 1969-Phila-51, 13182-Phila-51, 21557-Phila-50, 13181-Phila-51, and 13184-Phila-51, supplements TM 11-947, January 1949.

Personnel using this equipment and having custody of this technical manual will enter suitable notations beside each affected paragraph and figure in the technical manual to indicate the presence of this supplementary information.

Note. Power Unit PE-210-B is essentially the same as Power Unit PE-210. All information contained in TM 11-947 which pertains to Power Unit PE-210 applies equally to Power Unit PE-210-B, unless otherwise stated herein.

Throughout the technical manual, make the following changes in nomenclature:

Change Control Box BC-1376 to Generator Control C-890/U.
Change Meter Box MC-598 to Generator Control C-890/U.
For Power Unit PE-210-B, change Engine GE-12-B to Engine GE-12-G.

Page 1. Par. 1. Change the third sentence of subparagraph *a* to read: The unit may be started by hand or by connecting it to a 12- or 18-volt storage battery.

Page 1. Fig. 2. Insert figure 2.1 after figure 2.

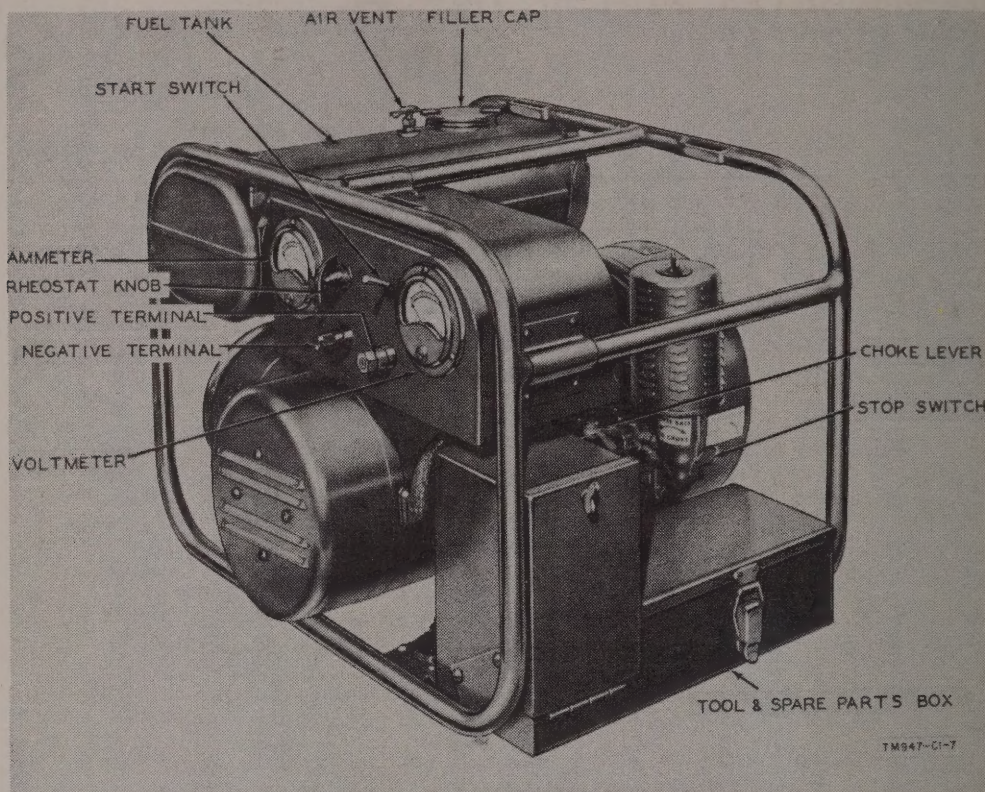


Figure 2.1. Power Unit PE-210-B, three-quarter view.

Page 2. Par. 1. Add the following “Note” after subparagraph *c*;

Note. The generator used in Power Unit PE-210-B is coupled to the engine by a flexible coupling-fan assembly. The driving member of the coupling is provided with a female spline which matches the splined extension of the engine crankshaft.

Page 2. Par. 3. In paragraph 3 under “Engine”, second item, change “ModelJ100” to read: Model..... J100 (Sig C GE-12-G).

Page 3. Par. 3. Make the following changes in paragraph 3: Under “Engine”, thirteenth item, change “Spark Plug..... Champion J-8, 14 mm” to read: Spark plugChampion XE-J 11, 14 mm.

Under "Generator", fifth item, change "Bearing.....one double-seal ball bearing" to read:

Bearings two double-seal ball.

Page 3. Par. 4. Delete paragraph 4 and substitute the following:

4. Power Unit PE-210-B

Item	Height (in.)	Width (in.)	Length (in.)	Weight (lb.)
1 bare unit consisting of:	13 $\frac{3}{4}$	16 $\frac{1}{4}$	17 $\frac{3}{4}$	----
1 Engine GE-12-G (complete)----	13 $\frac{1}{4}$	13 $\frac{1}{2}$	17 $\frac{3}{4}$	37
1 Generator GN-52-B-----	5 $\frac{5}{8}$	5 $\frac{5}{8}$	9 $\frac{3}{8}$	20
1 Generator Control C-890/U----	4 $\frac{1}{4}$	4 $\frac{1}{2}$	9 $\frac{1}{8}$	4 $\frac{3}{4}$
1 canvas cover.				
2 Cords CD-1334, 6 ft. long.				
1 set of tools.				
1 set of running spare parts.				

Page 3. Par. 5. Add the following at the end of subparagraph *a*:
Engine GE-12-G is a modification of Engine GE-12-B. Differences in models are explained in paragraph 6.

Page 5. Par. 5. Add the following at the end of subparagraph *b*:
Differences between the generator used in Power Unit PE-210 and the generator used in Power Unit PE-210-B are explained in paragraph 6.

Page 5. Par. 5. Delete subparagraph *c* and substitute the following:

c. GENERATOR CONTROL C-890/U. This control box is attached to the tubular frame of the unit (fig. 2.1). It contains a rheostat, starting switch, reverse-current relay, a 0- to-50-ampere scale ammeter, a 0-to-30-volt scale voltmeter, and three capacitors. A terminal block is mounted on the inside of the bottom of the box.

(1) The rheostat, in conjunction with the electric governor, controls the engine speed and generator voltage to permit charging batteries of 6 to 18 volts.

(2) When the unit is connected to a battery of 12 volts or higher, the starting switch, when held in the ON position, permits the battery current to flow through the generator and thus causes it to act as a motor for cranking the engine.

(3) The reverse-current relay closes the charging circuit when the generator voltage rises sufficiently to charge the battery. This

relay opens whenever the unit is stopped or the voltage output of the generator drops to a point where it cannot oppose the voltage of the battery. This action prevents the battery from discharging itself through the generator. Make sure that the rheostat is set so that the generator output voltage is higher than the voltage of the connected battery. Unless this is done, the reverse-current relay will not function.

Note. Generator Control C-890/U replaces Meter Box MC-598 and Control Box BC-1376 used on Power Unit PE-210.

Page 6. Par. 5. Delete subparagraph *h* and substitute the following:

h. TOOLS AND MATERIALS. The following tools are supplied with Power Unit PE-210-B:

Ref. No. (fig. 3.1)	Quantity	Item
1	1	Scraper, carbon.
2	1	Bag, tool.
3	1	Gage, depth, spark timing.
4	1	Gage, spark plug and magneto breaker point.
5	1	Puller, wheel, knock-off type.
6	1	Wrench, spark plug, 14 mm.
7		Sandpaper, flint #4/0.
8	1	Screw driver, 9" o/a.
9	1	Wrench, socket, double-end, $\frac{5}{16}$ " and $\frac{7}{16}$ " sockets. Offset 90° one end.
10	1	Brush, wire.
11	1	Wrench, box, double-end, $\frac{1}{2}$ " and $\frac{9}{16}$ " openings. Offset 45° both ends.
12	1	Wrench, open-end, $\frac{3}{8}$ " and $\frac{7}{16}$ " openings.

Page 6. Par. 5. Insert figure 3.1 after subparagraph *h*.

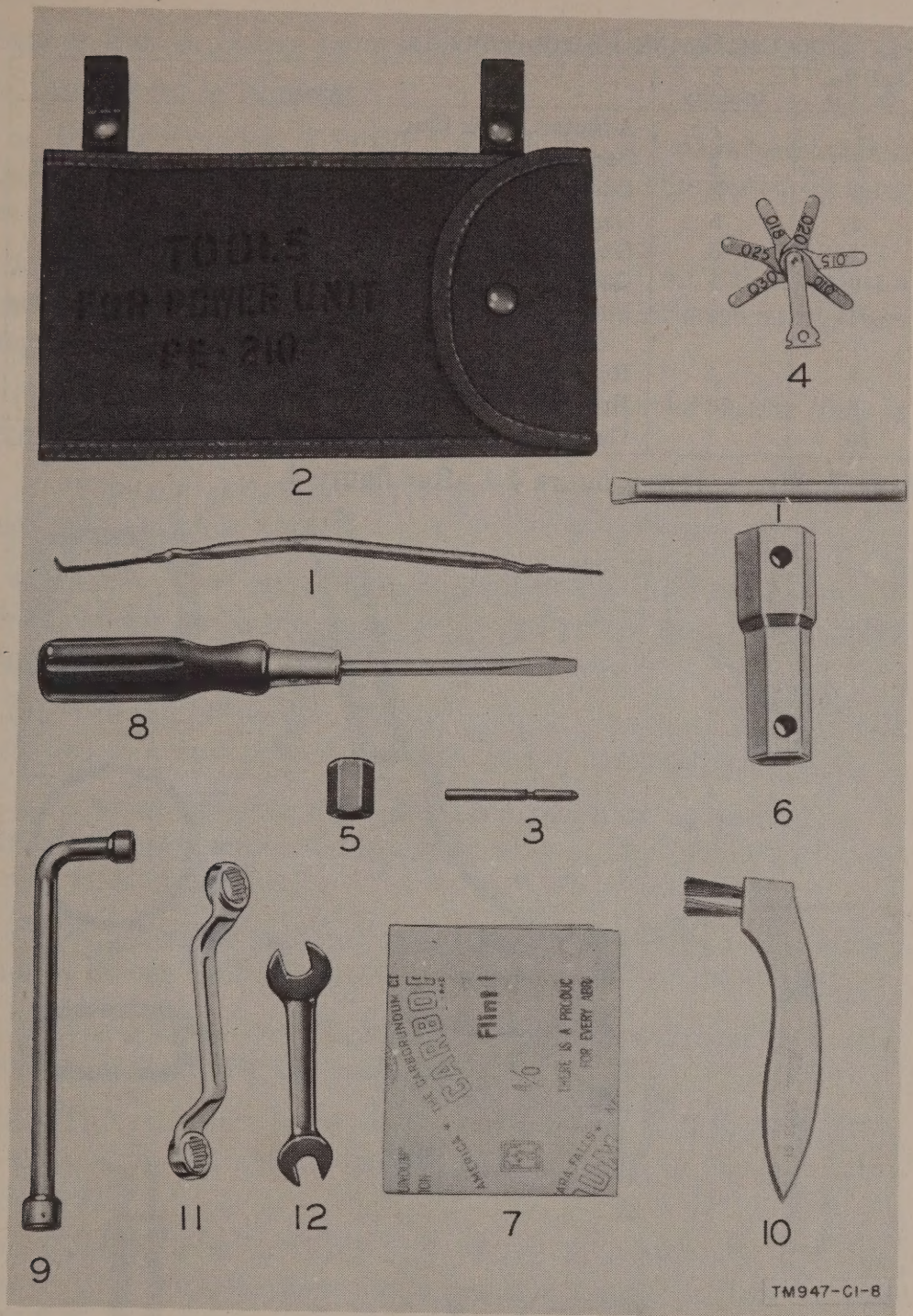


Figure 3.1. Power Unit PE-210-B, tools.

Page 7. Par. 5. Delete subparagraph *i* and substitute the following:

i. **RUNNING SPARE PARTS.** The following running spare parts are packed in the spare parts box mounted on the frame of Power Unit PE-210-B:

i. RUNNING SPARE PARTS (cont'd).

Ref. No. (fig. 4.1)	Quantity	Item
1	1	Adapter, spark plug.
2	1	Capacitor, magneto.
3	2	Contact, distributor breaker point.
4	5	Gasket, cylinder head.
5	5	Gasket, exhaust flange.
6	1	Gasket, muffler flange.
7	4	Plug, spark, 14mm, hot type, $\frac{13}{16}$ " hex., Champion XE-J 11.
8	1	Rope assembly, starter.
9	12	Brush, carbon, generator.
10	1	Capacitor, generator brush.

Page 7. Fig. 4. Insert figure 4.1 after figure 4.

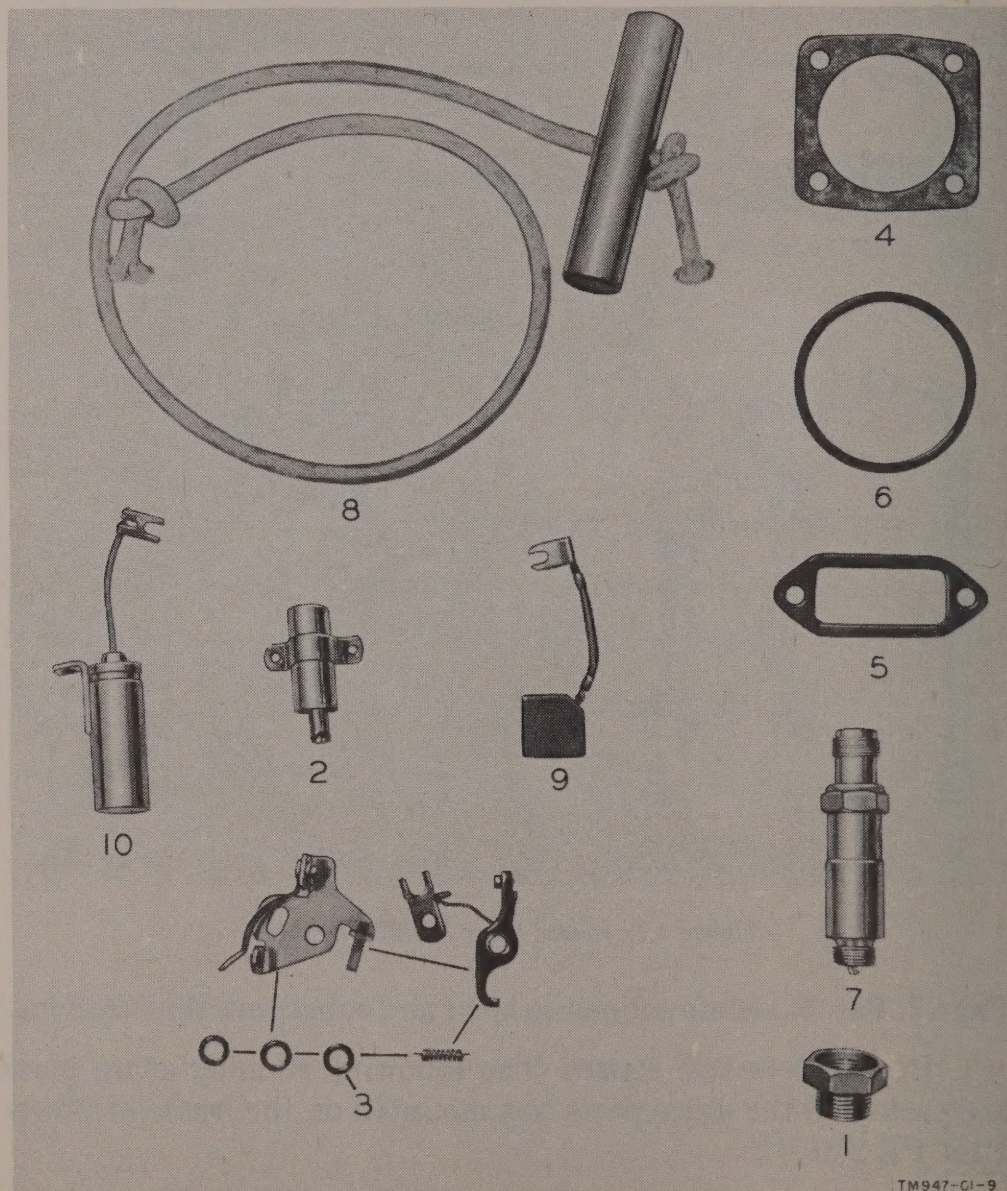


Figure 4.1. Power Unit PE-210-B, running spare parts.

Page 8. Par. 6. Delete paragraph 6 and substitute the following:

6. Differences in Models

a. On early models of Power Unit PE-210, a 1-ohm resistor was used in the control box. This resistor has been eliminated on later models (fig. 11).

b. Engine GE-12-G, which is used in Power Unit PE-210-B, is a modification of Engine GE-12-B. The major differences in these engines are as follows:

(1) A special adapter (insert), into which the spark plug is screwed, is screwed into the cylinder head.

(2) Tillotsen carburetor MD49A is used in place of Tillotsen carburetor B-8A.

(3) A stop switch has been built into the magneto backplate which short-circuits the magneto breaker points to stop the engine (fig. 34.1).

(4) The mounting for the governor and carburetor has been modified to accommodate the new type of carburetor.

(5) The electric governor has been modified by providing an adjusting screw and nut for adjustment of the solenoid plunger spring tension (fig. 13.1).

c. The generator used in Power Unit PE-210-B differs from that used in Power Unit PE-210 as follows:

(1) The generator is coupled to the engine crankshaft through a flexible coupling and fan assembly.

(2) The generator rotor shaft rotates in two ball bearings, one at the engine end and one at the outboard end of the generator (fig. 47.1).

d. Control Box BC-1376 and Meter Box MC-598, used on Power Unit PE-210, have been replaced by Generator Control C-890/U.

e. The engine subbase and rubber shock mountings have been modified in design.

Page 8. Par. 7. Delete the last three words, "or starting purposes", in this paragraph.

Page 8. Fig. 5. Delete the words "or starting" from the caption.

Page 12. Par. 15. Delete the first two sentences of paragraph 15 and substitute the following: Place 1 gallon of gasoline in a clean container and add $\frac{1}{2}$ pint of engine oil (OE). An oil-measuring cup is an integral part of the fuel tank cap. Use four measuring cupfuls of engine oil to each gallon of gasoline.

Page 13. Fig. 7. Insert figure 7.1 after figure 7.

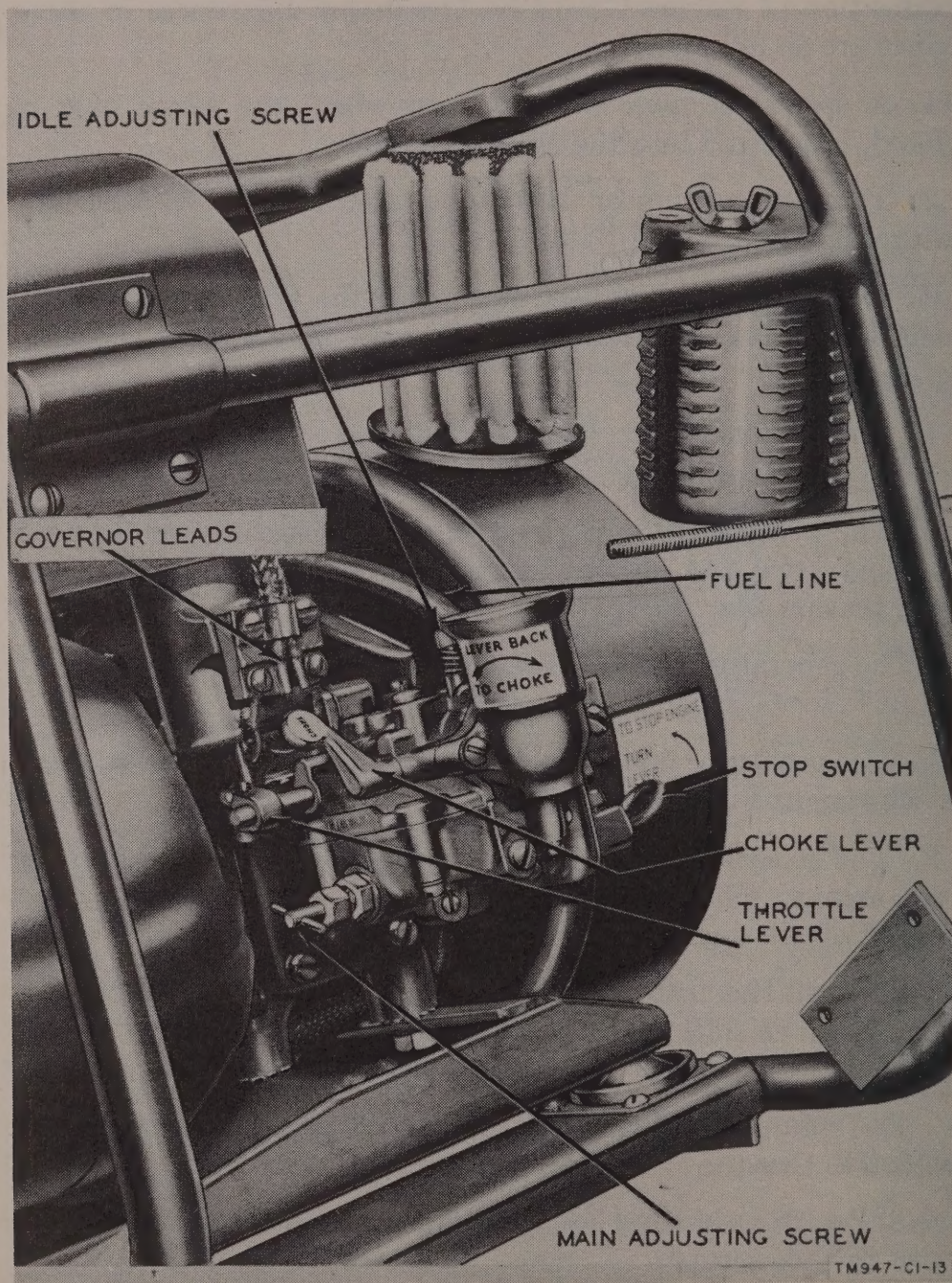


Figure 7.1. Power Unit PE-210-B, carburetor adjustments and controls.

Page 14. Par. 17. Delete paragraph 17 and substitute the following:

17. Starting

a. ROPE STARTING POWER UNIT PE-210-B. (1) The carburetor adjustments have been factory set and, unless changed, do not need readjustment each time the engine is started. See paragraph 67.1 for instructions for carburetor adjustments.

(2) Move the choke lever to the closed position (fig. 7.1). To close the choke, pull the choke lever toward the air cleaner.

(3) Slip the knotted end of the starter rope into the notch of the starter pulley and wind it clockwise around the pulley. Hold the unit frame with one hand and pull the starting rope up sharply with the other hand. If the engine does not start after four or five crankings, refer to paragraph 59 for the possible cause.

(4) When the engine starts, move the choke lever away from the air cleaner to its fully open position. If the engine will not run unless the choke is partially closed, readjust the carburetor in accordance with instructions in paragraph 67.1.

Caution: Except in an extreme emergency, always operate the unit for at least 5 minutes before applying load. This is specially important when operating in low temperatures.

(5) Overchoking the engine when starting will flood it. This is particularly true when the engine is warm. If this occurs, proceed as follows:

(a) Close the main adjusting screw (fig. 7.1) by turning it clockwise as far as it will go. Note the number of turns so that the screw can be reset to its original position.

Caution: When closing the main adjustment screw, do not force it as this will damage the needle valve and seat.

(b) Open the crankcase drain cock and crank the engine a few times with this cock open. Be sure to close the cock securely after cranking.

(c) Remove the spark plug and clean and dry the spark plug adapter. Dry the spark plug and reinstall it in the engine.

(d) Make sure the choke is fully open and crank the engine.

(e) As soon as the engine starts, reset the main adjusting screw to its original position.

b. PRECAUTIONS AFTER STARTING (1) *Insufficient fuel.* Failure to run more than a few seconds after starting or when load is applied usually indicates a lean carburetor adjustment. If this occurs immediately after starting and while the engine is still cold, partially close the choke. If it is necessary to keep the choke partially closed after the engine has reached operating temperature, readjust the carburetor in accordance with instructions in paragraph 67.1.

(2) *Too much fuel.* When the engine appears to misfire every alternate revolution and lacks power, it is usually an indication that the carburetor setting is too rich or that the choke is not fully open. Make sure that the choke is in a fully open position. If the choke is fully open and the difficulty persists, see paragraph 67.1. A slight amount of erratic missing may occur when the unit is operating without load. This is a characteristic of the engine and should disappear when load is applied. If erratic missing continues after load is applied, the difficulty may be due to a fouled spark plug or clogged spark plug adapter. Remove the spark plug. Clean the spark plug adapter, and clean or replace the spark plug to remedy this condition.

Page 15. Par. 19. Delete paragraph 19 and substitute the following:

19. Stopping Power Unit PE-210-B

To stop Power Unit PE-210-B, turn the stop switch lever which extends from the magneto backplate and hold it in the OFF position until the engine comes to a complete stop. Close the fuel shut-off valve and fuel tank air vent when the unit is not in operation.

Page 16. Par. 21. Insert the following under the headings for items No. 6, 8, and 10, respectively, in the equipment performance checklist:

Item No.	Item	Action or condition	Normal indication	Corrective measure
6.1	Choke.	Close.	Lever pulled toward air cleaner.	Set lever in closed position.
8.1	Start switch.	Hold handle down.	Engine should start.	If engine fails to start, see paragraph 59.
10.1	Stop lever.	Press down.	Engine should stop.	Shut off fuel.

Page 22. Par. 35. Delete the second sentence and substitute the following: Current lubrication orders should be requisitioned in conformance with instructions and list in SR 310-20-3.

Page 22. Par. 37. Make the following changes in paragraph 37: Under column headed "Standard nomenclature", delete the sentence following the explanation of symbol OE 10. Add the following after the first item in the table:

Symbols	Standard nomenclature
OE-A	Oil, engine, Arctic. For use in subzero temperatures, when available.

Page 23. Par. 38. Delete subparagraph *c* (1) and substitute the following:

(1) The generator used on Power Unit PE-210-B has two, pre-lubricated, sealed ball bearings. These bearings cannot be re-lubricated.

Page 23. Par. 39. Delete paragraph 39 and substitute the following:

39. Forms and Records

a. The following standard forms will be used for reporting unsatisfactory conditions of equipment, or improper preservation, packaging, packing, marking, loading, stowage, or handling thereof:

(1) DD Form 6, Report of Damaged or Improper Shipment, will be filled out and forwarded as prescribed in SR 745-45-5 (Army), NAV DEPT SERIAL 85POO (Navy), and AFR 71-4 (Air Force).

(2) DA AGO Form 468, Unsatisfactory Equipment Report, will be filled out and forwarded to the Office of the Chief Signal Officer as prescribed in SR 700-45-5.

(3) AF Form 54, Unsatisfactory Report, will be filled out and forwarded to Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio, as prescribed in SR 700-45-5 and AFR 65-26.

(4) Use other forms and records as authorized.

b. The following forms are necessary in connection with the operation and maintenance of Signal Corps internal-combustion-engine-driven equipment:

(1) NME Form 110 (Vehicle and Equipment Operational Record) is explained in TM 37-2810, Changes No. 1.

(2) WD AGO Form 460 (Preventive Maintenance Roster) is explained in TM 37-2810, paragraph 4c.

(3) DA AGO Form 464 (Work Sheet for Preventive Maintenance and Technical Inspection of Engineer Equipment) is explained in TM 37-2810, paragraph 18.

Page 26. Par. 45. In subparagraph *d*, under “Action” column, item 11, *Cylinder Head, Manifold, and Gaskets*, add the following to the note: Whenever the cylinder head is removed, clean both the spark plug and spark plug adapter.

Page 28. Par. 45. In subparagraph *d*, under “Action” column, item 46, *Spark Plugs*, add the following to the note: Always clean the spark plug adapter whenever the spark plug is removed.

Page 29. Par. 47. Delete paragraph 47 and substitute the following:

47. Weatherproofing

a. TROPICAL MAINTENANCE. A special moistureproofing and fungi-proofing treatment has been devised which, if properly applied, provides a reasonable degree of protection from fungus growth, insects, corrosion, and excessive moisture. This treatment is fully explained in TB SIG 13 and TB SIG 72.

b. LUBRICATION. The effects of extreme cold and heat on materials and lubricants are explained in TB SIG 69. Observe all precautions outlined in TB SIG 69 and pay strict attention to all lubrication orders when operating equipment under conditions of extreme cold or heat.

Page 33. Par. 48. Add the following after subparagraph *b* (3):
When equipment is operated in subzero temperatures, use oil (OE-A) as an engine lubricant, when it is available.

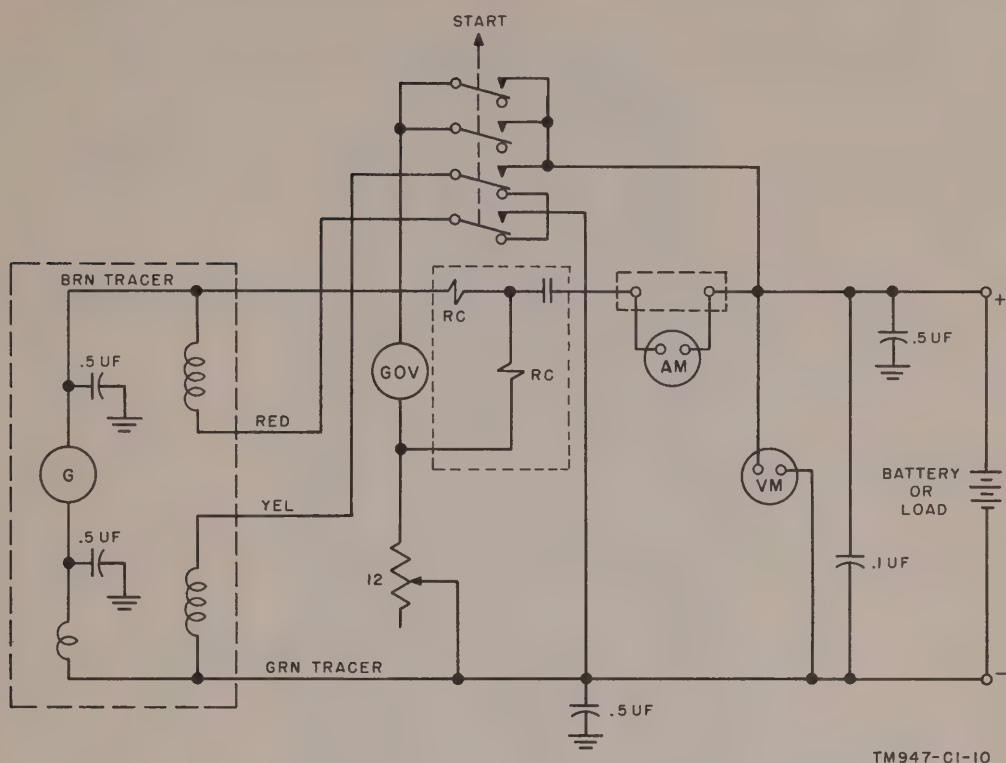


Figure 11.1. Power Unit PE-210-B, electrical system, schematic diagram.

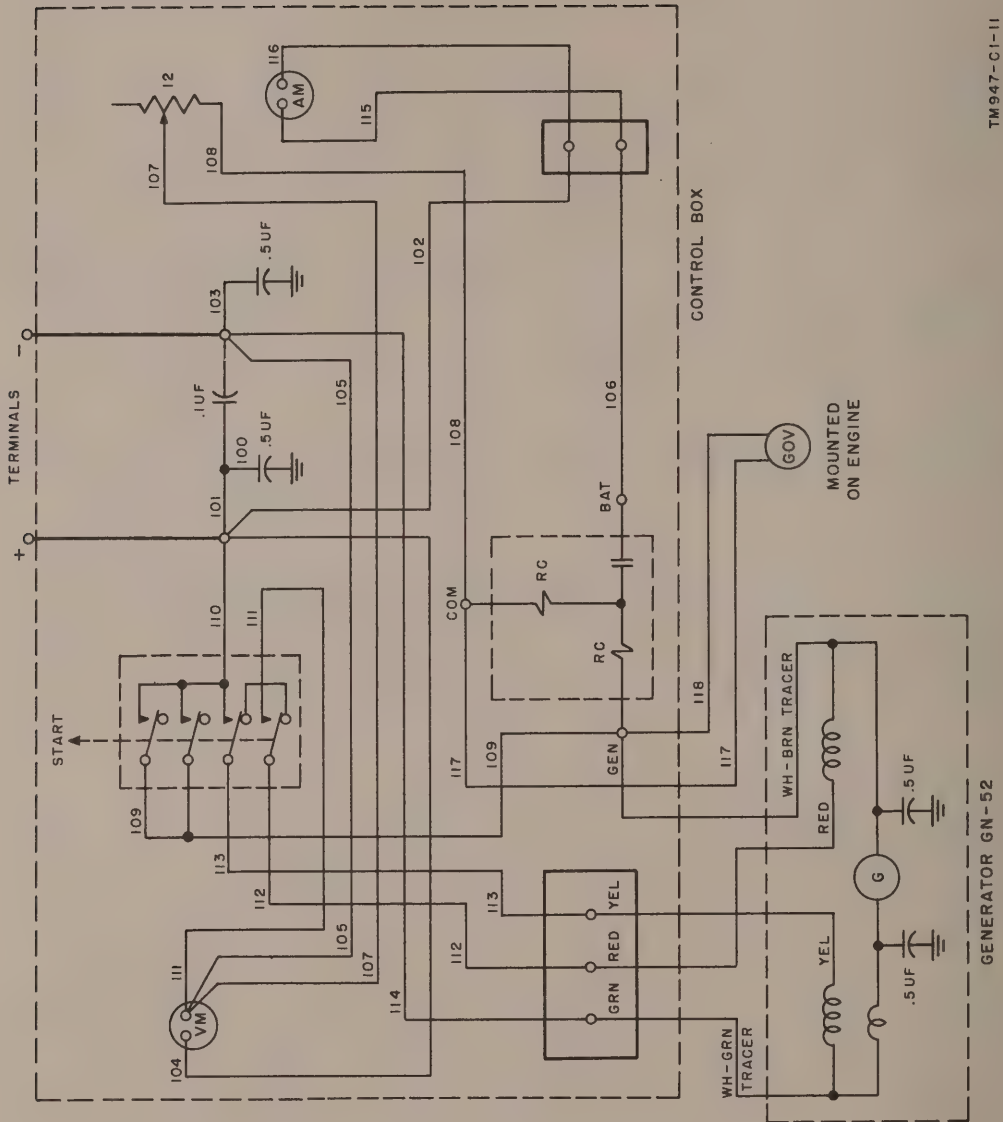
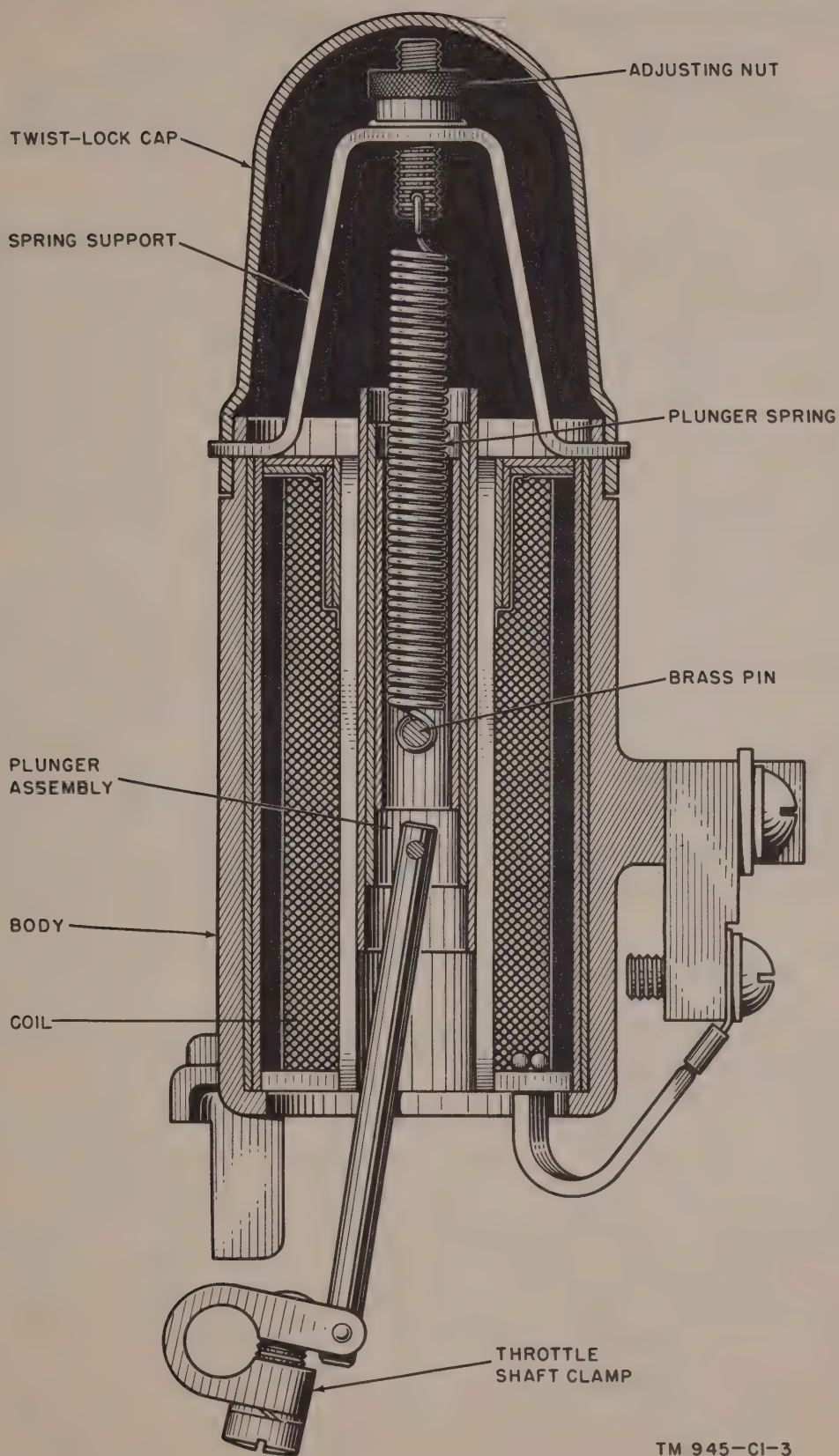


Figure 12.1. Power Unit PE-210-B, electrical system, wiring diagram.



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Figure 13.1. Power Unit PE-210-B, electric governor, sectional view.

Page 40. Par. 54. Insert the following after paragraph 54:

54.1 Theory of Carburetor Function (fig. 22.1)

a. A constant fuel level must be maintained in the carburetor float bowl and all channels of the carburetor at all times. This is controlled by the inlet needle and seat assembly (C) and the float (F).

b. At low or idle speed, the throttle shutter (G) closes the venturi (R) and causes fuel to enter the engine through the idle discharge ports (H). Fuel flows by the main adjustment screw (T), through channel (W), and into the idle tube (L). High vacuum ahead of the throttle shutter (G) draws this fuel upward and out of the orifice (M). The fuel from the idle tube orifice mixes with air from channel (J) and the resulting air-fuel mixture is drawn into the engine through the idle fuel discharge ports (H). Additional air, passing the slightly open throttle shutter, is mixed with the fuel as it passes toward the engine.

c. When the engine is operating at other than idle speed or pulling a load, the throttle shutter (G) is no longer closed. This reduces suction in the carburetor and minimizes the fuel discharge at (H). The opening of the throttle shutter increases, to a high velocity, the flow of air through the venturi (R). This rapidly flowing air draws fuel from the main nozzle (Y). As the engine speed or load is increased, air is bled automatically into the main nozzle through tube (U). This causes a proper proportion of fuel in relation to the main nozzle adjustment.

Page 41. Par. 58. Delete subparagraph *b* and substitute the following: Diagrams (figs. 11.1 and 12.1).

Page 42. Par. 59. In subparagraph *a* add the following after items 7 and 15, respectively:

Possible cause	Check	Remedy
7.1. Spark plug adapter clogged.	Inspect adapter.	Clean adapter.
16. Stop switch short-circuited.	Stop switch.	Remove short circuit.

Page 42. Par. 59. In subparagraph *b* add the following after item 4:

Possible cause	Check	Remedy
4.1. Faulty carburetor adjustment.	Setting of main and idle adjusting screws	Readjust as instructed in par. 67.1

Page 42. Par. 59. In subparagraph *b*, item 6, “Remedy” column, add: For PE-210-B, use Champion XE-J 11.

Page 42. Par. 59. In subparagraph *c*, item 1, “Remedy” column, change “Move to horizontal” to read: Open choke fully.

Page 43. Par. 59. In subparagraph *e*, add the following after item 3:

Possible cause	Check	Remedy
4. Loose spark plug adapter.	Spark plug adapter.	Tighten spark plug adapter.

Page 47. Par. 63. Delete subparagraph *b* (2) (*d*) and substitute the following:

(*d*) Power Unit PE-210B is equipped with a Champion XE-J 11 shielded spark plug and a spark plug adapter. Unscrew the shielded ignition cable from the spark plug. Remove the spark plug from the spark plug adapter. Remove the cylinder head baffle and then the spark plug adapter from the cylinder head.

Page 50. Par. 64. Delete subparagraph *g* and substitute the following:

g. On Power Unit PE-210-B, screw the spark plug adapter into the cylinder head, install the cylinder head baffle, place a new gasket on the spark plug, and install the spark plug. Attach the shielded ignition cable to the spark plug.

Page 51. Par. 67. Delete paragraph 67 and substitute the following:

67. Power Unit PE-210-B, Carburetor Disassembly

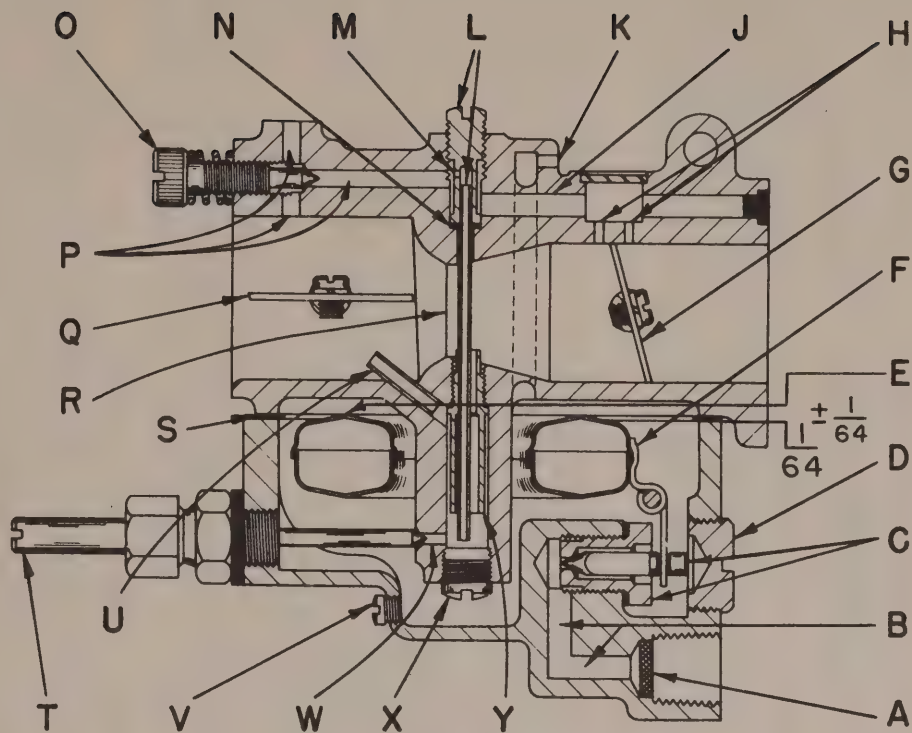
Power Unit PE-210-B uses a Tillotsen model MD49A carburetor. Remove and disassemble the carburetor as follows:

a. Remove the carburetor and governor assembly from the engine.

- b.* Separate the carburetor from the electric governor (fig. 53.3).
- c.* Remove the two screws that hold the carburetor to the governor mounting bracket.
- d.* Loosen the screw that clamps the throttle lever to the throttle shaft. Slide the throttle lever from the throttle shaft and separate the governor from the carburetor.
- e.* Remove the main adjustment screw and gland assembly from the carburetor fuel bowl (fig. 51.1).
- f.* Remove the body retaining screws and separate the upper carburetor body and fuel bowl assemblies.
- g.* Remove the float-lever-pinion pin and remove the float from the fuel bowl.
- h.* Remove the large plug screw (19, fig. 51.1) and then remove the inlet needle and seat (25, fig. 51.1).
- i.* Remove the idle adjustment screw (20, fig. 51.1), spring (21, fig. 51.1), and the idle tube and gasket (22 and 23, fig. 51.1). Also remove the main nozzle channel plug screw (X, fig. 22.1) from the upper body.
- j.* Remove the throttle shutter, shaft, and lever assembly.

Page 53. Fig. 22. Insert figure 22.1 after figure 22.

Figure 22.1. Power Unit PE-210-B, carburetor, cross-sectional view.



- A Fuel Inlet Screen
- B Fuel Inlet Supply Channel
- C Inlet Needle and Seat
- D Fuel Bowl Plug Screw
- E Float Setting
- F Float
- G Throttle Shutter
- H Idle Fuel Discharge Ports
- J Idle Fuel Channel
- K Fuel Bowl Air Vent
- L Idle Tube
- M Idle Tube Fuel Outlet Orifice
- N Idle Tube Gasket
- O Idle Adjustment Screw
- P Idle Air Bleed Supply Channels
- Q Choke Shutter
- R Venturi
- S Body Gasket
- T Main Adjustment Screw
- U Main Nozzle Air Bleed Tube
- V Fuel Bowl Drain Screw
- W Main Fuel Adjustment Orifice
- X Main Nozzle Channel Plug Screw
- Y Main Nozzle

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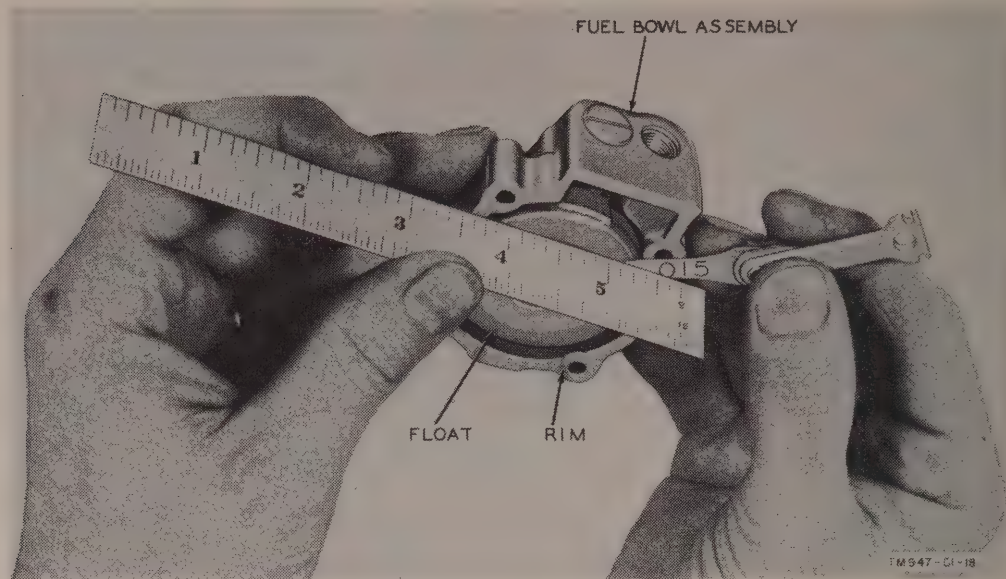


Figure 23.1. Power Unit PE-210-B, carburetor float lever adjustment.

Page 54. Par. 67. Add the following after paragraph 67:

67.1. Power Unit PE-210-B, Carburetor Cleaning

a. After the carburetor has been disassembled, thoroughly wash all parts in clean solvent (SD). Remove any gum formation with acetone, benzine, or alcohol. Replace any parts that cannot be cleaned without damage. Blow out the following with clean compressed air:

(1) Main nozzle (Y) and air-bleed vent tube (U) (fig. 22.1). If replacement of the main nozzle is necessary, remove it from the upper body and install the new nozzle.

(2) Idle fuel supply channel (J) (fig. 22.1). Install the idle tube (L) and gasket in the upper body. Place the air hose at the open end of the fuel supply channel (J) at the point where the idle adjustment screw (D) is installed.

(3) Fuel inlet channel (A) (fig. 22.1). Place the air hose at the point where the fuel connection is made to the fuel body and carefully blow out the fuel inlet channel. Make sure that the fuel inlet screen is clean and in place.

67.2. Power Unit-PE-210-B, Carburetor Reassembly (fig. 51.1)

a. Insert the throttle shaft (34) in the upper carburetor body and attach the throttle shutter (36) to the shaft with the screw(37).

b. Install the main nozzle (32) and the channel plug screw (33) in the upper body (1).

c. Install the idle tube and gasket (22 and 23). Place the idle adjustment retaining spring (21) on the idle adjustment screw (20) and install the assembly in the upper body.

d. Install the inlet needle and seat with gasket (25) in the fuel bowl and replace the large plug screw (19).

e. Set the float (14) in the fuel bowl. Make sure that the tangs of the float pivot arm straddle the inlet needle in the groove at its outer end. Insert the float pin (15) through the fuel bowl and float pivot.

f. Before attaching the fuel bowl to the upper carburetor body, check the float setting and adjust it, if necessary proceed as follows:

(1) With the float and inlet needle installed in the fuel bowl, hold the assembly upside down (fig. 23.1).

(2) Place the straight edge of a steel scale across the lowest projecting point of the float at the free end of the float.

(3) Be careful not to lift the float and insert a .015-inch thickness gage between the edge of the steel scale and the rim of the fuel bowl. The gage should just fit between the edge of the bowl and the edge of the scale.

(4) If adjustment is necessary, remove the float and bend the arm of the float lever, that engages the inlet needle, very slightly until the proper measurement is obtained.

Note: If the fuel level rises beyond the float-setting point with the float lever properly adjusted, inspect the seating of the needle valve in its seat. If the fault appears to be in the needle valve and seat, clean them with a soft cloth. Place the needle valve in its seat and tap it very lightly, while turning it with the thumb and forefinger. If this does not remedy the condition, replace the needle and seat. *Do not change the float setting from the manufacturer's specifications.*

g. Set the gasket (3, fig. 51.1) in place and attach the upper carburetor body (1) to the fuel bowl (16) with the four screws and lockwashers. Tighten the screws securely.

h. Assemble the main adjusting screw (27), nut (31,) packing

(30), and gland (28). Place the gasket (29) on the gland and install the complete assembly in the fuel bowl.

i. Insert the choke shaft (10) in the upper carburetor body (1). Make sure that the longer end of the shaft projects from the body. Install the choke shutter (11) and fasten it to the shaft with screw (12).

j. Attach the choke lever to the choke shaft.

k. Replace all remaining small parts and plugs.

l. Install the air cleaner elbow to the carburetor air intake with the two screws and lockwashers.

m. Reassemble the electric governor to the mounting bracket and install the carburetor, governor, and bracket assembly to the engine. Make sure that all gaskets are installed and in good condition. Inspect the reed valve before the carburetor is installed to see that the valve is properly installed and secure.

n. Reassemble the air cleaner assembly to the air cleaner elbow.

67.3. Power Unit PE-210-B, Carburetor Adjustment

Two separate adjustments are provided: The main adjusting screw (27, fig. 51.1) and the idle adjustment screw (20, fig. 51.1).

a. INITIAL ADJUSTMENT. Turn the idle adjustment screw clockwise until it is fully seated. Do not force this screw; damage to both the needle valve and seat will result. Turn the idle adjustment screw counterclockwise about $\frac{3}{4}$ turn from its fully closed position. Perform the same operations on the main adjusting screw (27). When both of these adjustments have been made, close the carburetor choke and start the engine.

b. POWER RANGE ADJUSTMENT. Allow the engine to reach operating temperature. Hold the throttle in approximately one-half open position and turn the main adjusting screw clockwise until the engine begins to lose speed. When this occurs, turn the main adjusting screw counterclockwise (usually about $\frac{1}{8}$ turn) until maximum speed and power are obtained.

c. IDLE ADJUSTMENT. After the power range adjustment has been made, close the engine throttle to idle position. Turn the idle adjusting screw clockwise until the engine begins to lose speed and flutter. Turn the idle adjustment screw back (counterclockwise) until the engine runs smoothly.

d. **FINAL ADJUSTMENT.** Alternately open and close the throttle a few times to test the adjustment. If acceleration hesitancy or stalling at idle speed occurs, repeat the entire adjustment procedure.

Page 56. Par. 69. In subparagraph *h* delete the second sentence and substitute the following: Insert the hook on the free end of the solenoid plunger spring into the hole in the flatted adjusting screw. Screw the adjusting nut onto the screw and turn it down until the hole in the screw is approximately $\frac{3}{8}$ inch below the support.

Page 57. Par. 69. In subparagraph *k* delete the third sentence and substitute the following: To increase the output voltage, turn down the adjusting screw nut. This increases the tension of the solenoid spring.

Page 58. Fig. 27. Insert figure 27.1 after figure 27.

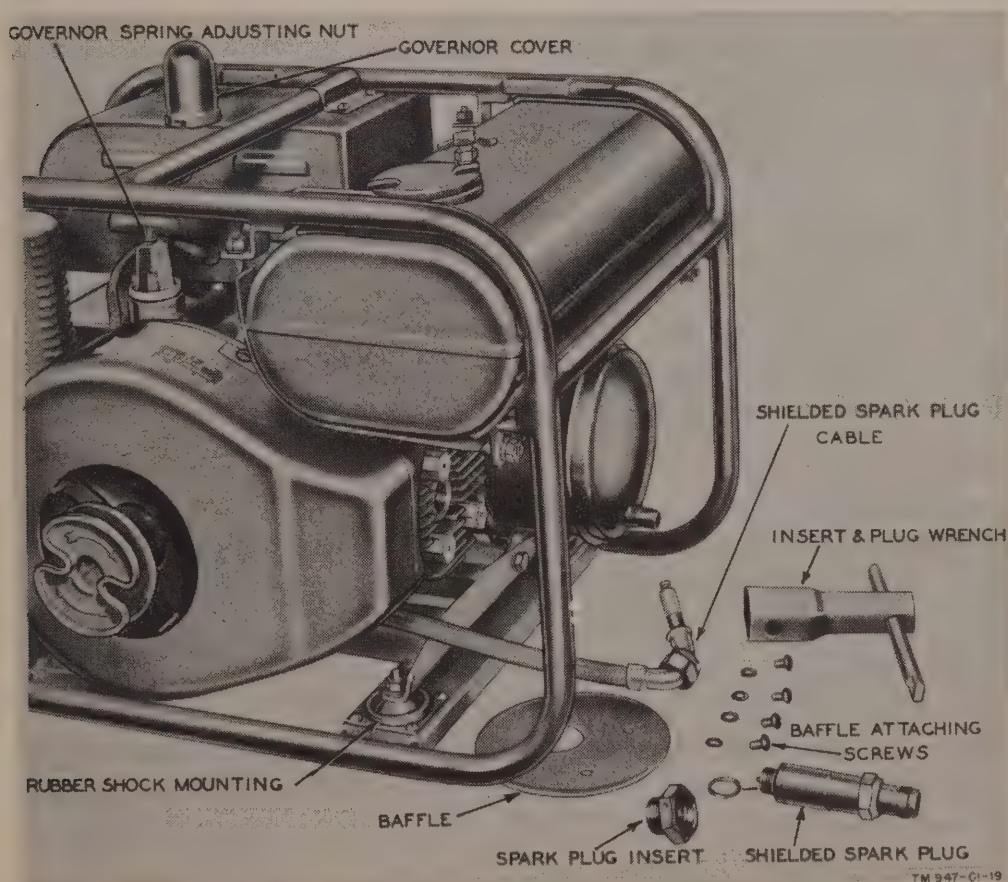


Figure 27.1. Power Unit PE-210-B, spark plug, spark plug adapter, and ignition shielding.

Page 57. Par. 69. Delete subparagraph 1 and substitute the following:

1. On Power Unit PE-210-B, turn the governor adjusting nut up or down until the desired charging rate is obtained.

Page 58. Par. 70. Delete paragraph 70 and substitute the following:

70. Spark Plug, Power Unit PE-210-B

Power Unit PE-210-B is equipped with a Champion XE-J 11 shielded spark plug with a built-in suppressor. The shielded ignition cable attaches directly to the spark plug. These units are equipped also with a spark plug adapter, in the cylinder head, into which the spark plug is screwed. This adapter must be inspected and cleaned every time the spark plug is cleaned or adjusted.

a. REMOVAL. To remove the spark plug, unscrew the shielding nut from the spark plug and lift the spark plug shielding and cable from the spark plug. Unscrew the spark plug from the spark plug adapter in the cylinder head.

b. CLEANING AND INSPECTING. Wash the spark plug thoroughly in solvent (SD) and dry it with air pressure. Carefully inspect the spark plug insulator for cracks and chips and other unsatisfactory conditions. Check the gap between the spark plug electrodes and adjust it to .035 inch. When adjusting this gap, never bend the center electrode. Bend the electrode attached to the shell of the plug only. Inspect the spark plug adapter in the engine cylinder head to see that the holes are not obstructed. If the holes in the adapter are obstructed, clean them with a small wire. Clean all carbon from the inside of the adapter before reinstalling the spark plug.

c. TESTING. Attach the spark plug to the ignition cable and shielding assembly, and lay the shell of the spark plug on the frame of the unit. Make sure that the shell of the spark plug is making good contact with the unit frame and that it will not jar off when the engine is cranked. Spin the engine by means of the starting rope and watch for a spark between the electrodes of the spark plug. If no spark occurs between the spark plug electrodes, check the magneto. To do this, disconnect the ignition cable and shielding assembly from the spark plug. Hold the cable and shielding assembly so that the small spring projecting from the shielding elbow is about $\frac{3}{16}$ inch away from the unit frame. Spin the engine with the starting rope and watch for a spark between the end of

the ignition cable and the unit frame. If a spark occurs, install a new spark plug in the engine.

d. **SPARK PLUG INSTALLATION.** Before replacing the old spark plug or installing a new one, always check that the spark plug adapter (insert) is clean and that the holes in the adapter are not clogged. Screw the spark plug into the spark plug adapter. Press the spring contact which extends from the end of the shielding elbow onto the spark plug and screw on the shielding nut.

Page 60. Par. 71. Delete subparagraph *a* and substitute the following:

a. **TESTING MAGNETO (PE-210-B).** Test the magneto spark as instructed in paragraph 70c. If the magneto is operating properly, a spark should jump the gap between the end of the ignition cable and the unit frame. If no spark occurs or it is noticeably weak, check the magneto breaker points and capacitor. Also, inspect the magneto cable and shielding to see that the cable is not short-circuited to the shielding. Check that the stop switch is not short-circuited.

Page 60. Par. 71. Add the following after subparagraph *b* (1):

(1.1) Disconnect the spark plug ignition cable and the shielding assembly from the spark plug.

Page 63. Par. 71. Delete subparagraph *c* (7) and substitute the following:

(7) Install the magneto, flywheel, flywheel housing, and spark plug, and attach the spark plug cable and shielding assembly to the spark plug.

Page 63. Par. 71. Delete subparagraph *d* (1) and substitute the following:

(1) Disconnect the spark plug shielding and the ignition cable assembly from the spark plug. Remove the spark plug, flywheel housing, and flywheel. Remove the magneto cam brush.

Page 64. Fig. 34. Insert figure 34.1 after figure 34.

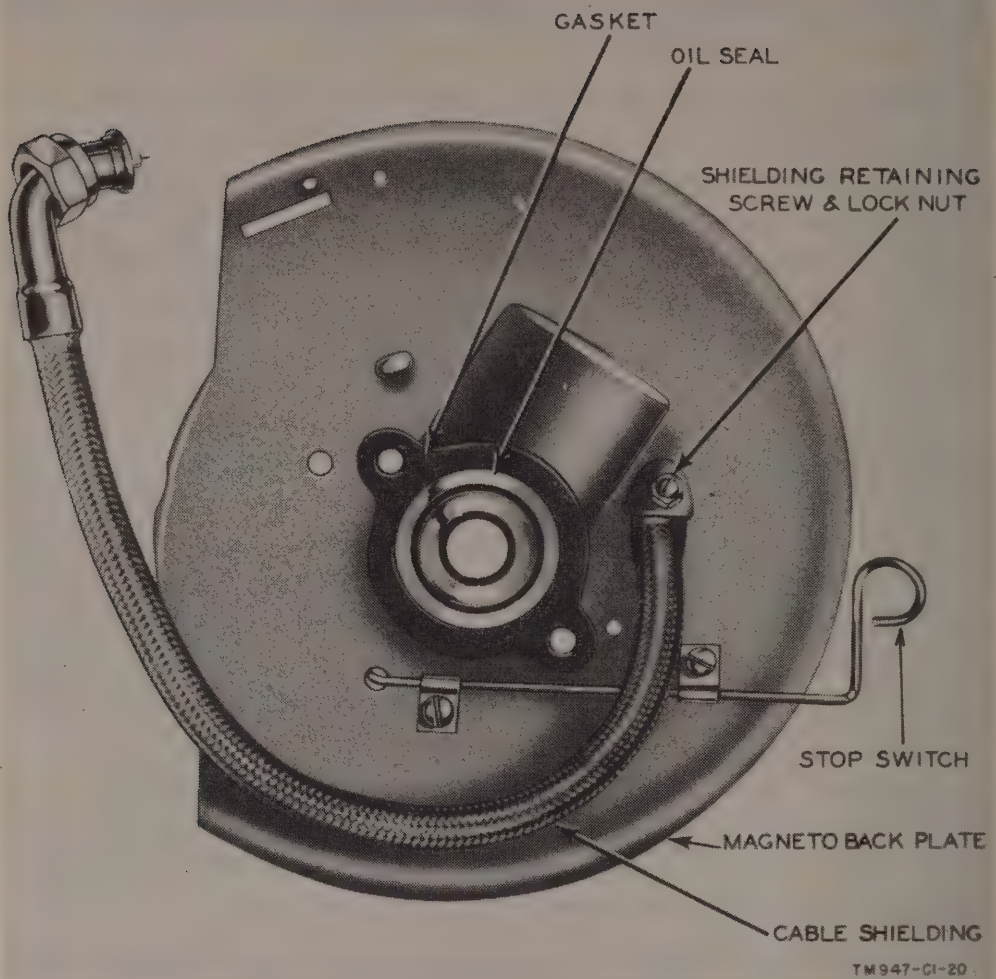


Figure 34.1. Power Unit PE-210-B, magneto backplate and cable.

Page 64. Par. 71. Delete subparagraph *d* (7) and substitute the following:

(7) Install the flywheel, flywheel housing, and spark plug. Attach the ignition cable and the shielding assembly to the spark plug.

Page 65. Par. 71. Add the following after the last sentence of subparagraph *e* (2): On Power Unit PE-210-B, also remove the spark plug adapter from the cylinder head.

Page 65. Par. 71. Delete subparagraph *f* (1) and substitute the following:

(1) Power Unit PE-210-B is equipped with a Champion type XE-J 11 spark plug which has a built-in suppressor. Unfasten the

ignition cable from the magneto coil. Loosen the screw and locknut that secure the shielding and cable assembly to the magneto backplate. Disconnect the shielding nut from the spark plug. The ignition cable can now be removed from the shielding.

Page 66. Par. 71. Add the following after subparagraph *f* (6):

(6.1) On Power Unit PE-210-B, screw the nut on the elbow of the shielding assembly to the spark plug.

Page 66. Par. 72. Add the following after subparagraph *a* (1):

(1.1) On Power Unit PE-210-B, disconnect the spark plug cable shielding assembly from the spark plug. Remove the spark plug, the cylinder head baffle, and the spark plug adapter.

Page 75. Par. 74. Add the following after subparagraph *a* (1):

(1.1) On Power Unit PE-210-B, disconnect the spark plug cable shielding assembly from the spark plug. Remove the spark plug and the spark plug adapter from the cylinder head.

Page 75. Par. 74. Add the following at the end of subparagraph *b* (1): On engines equipped with a spark plug adapter, inspect the threads on the adapter to see that they are not damaged, and thoroughly clean the adapter. Make sure that the small holes in the adapter are not obstructed.

Page 75. Par. 74. Add the following after subparagraph *c* (4):

(4.1) On Power Unit PE-210-B, install the spark plug adapter in the cylinder head. Place a new gasket on the spark plug and screw the sparkplug into the adapter. Screw the nut on the elbow of the ignition cable shielding assembly to the spark plug.

Page 79. Par. 78. Add the following after subparagraph *a* (4):

(4.1) On Power Unit PE-210-B, the armature, engine end bearing plate, and coupling and fan assembly are removed as a unit. Proceed as instructed in subparagraphs (1), (2), and (3) above. Substitute a longer screw or stud for the retaining screw just removed, and screw it into the end of the armature shaft. Drive the armature assembly out by tapping on the end of the screw. When the armature assembly has been removed, remove the Allen-head set screw from the hub of the fan and loosen the second screw which is in the same hole. Pull the fan from the armature shaft. The engine end bearing is a light press fit in the bearing plate and can be pressed out with the fingers.

Page 79. Fig. 47. Insert figure 47.1 after figure 47.

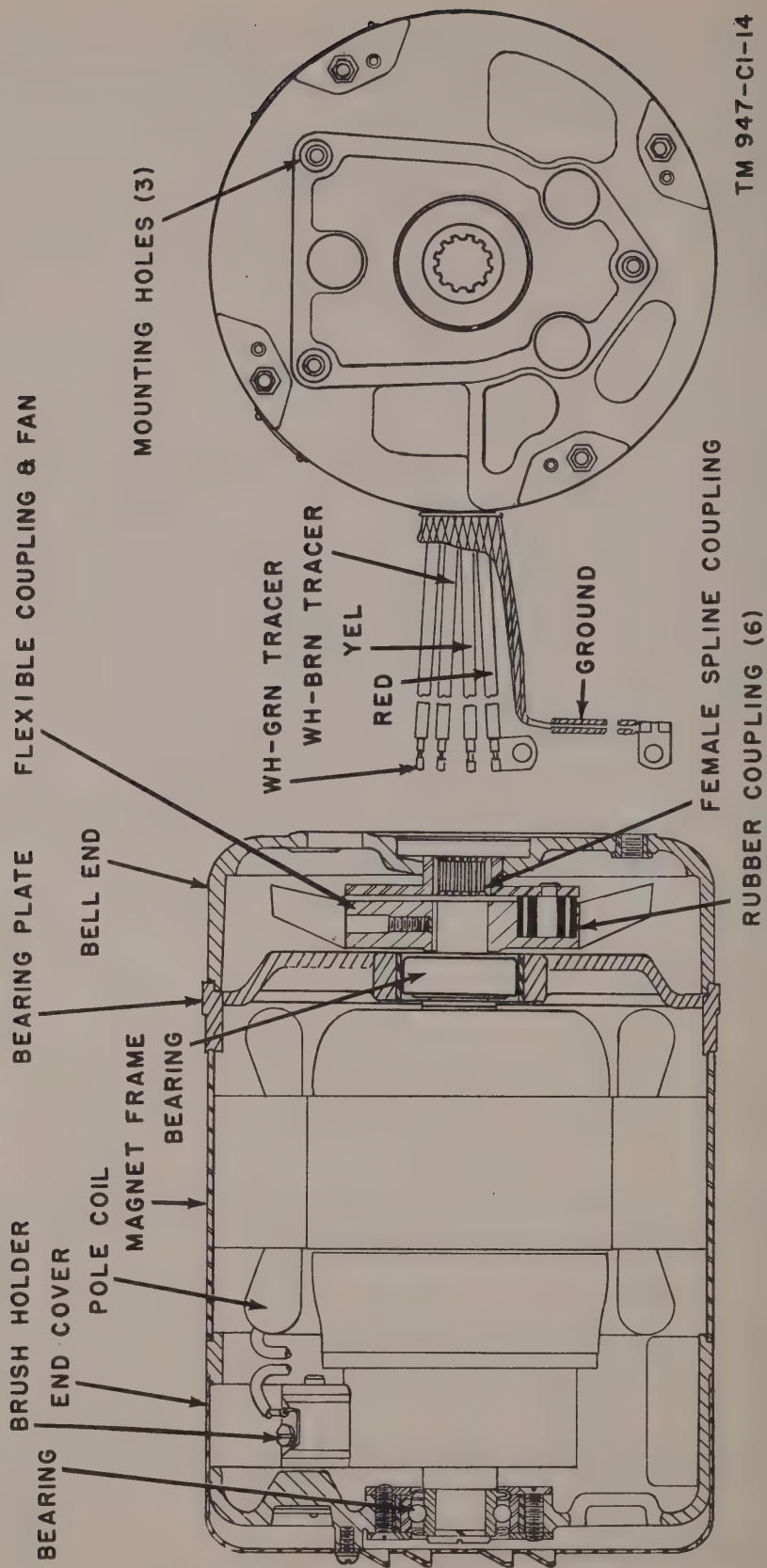


Figure 47.1. Power Unit PE-210-B, generator, cross-sectional view.

Page 80. Par. 78. Add the following after subparagraph c:

d. REASSEMBLY (PE-210-B). When reassembling the generator, refer to the cross-sectional view (fig. 47.1).

(1) Insert the armature in the magnet frame assembly. The brushes should be removed for ease of installation. If necessary, tap the end of the armature to drive the shaft into the outboard end bearing. Protect the end of the shaft with a block of wood when tapping, and drive the shaft into the bearing only far enough to engage the retaining screw. Pull the shaft the rest of the way into the bearing by turning up on the screw.

(2) Turn the stator (magnet frame) on the end bell until the matching marks are alined. Insert the through-bolts and install the engine end bearing plate and bearing. Place the Woodruff key in the keyway on the splined end of the shaft and install the coupling and fan assembly onto the shaft. Insert one of the Allen-head set screws in the hole in the fan hub and turn it down tight. Insert the second Allen-head screw in the same hole and turn it down tightly on top of the first screw.

(3) Engage the driving half of the coupling with the driven half. Check that the rubber inserts in the driven half of the coupling are in good condition and that the pins on the driving half fit snugly into the rubber inserts in the driven half of the coupling.

(4) Install the engine end bell, and install and tighten the nuts on the through-bolts.

(5) Install the generator brushes and then install the outboard end cover. Before installing the end cover, make sure that all brushes move freely in their holders and that they are properly seated on the commutator.

(6) Assemble the engine to the generator. Attach the subbase to the engine, and install the complete assembly in the unit frame.

Page 80. Par. 79. Delete paragraph 79 and substitute the following:

79. Generator Control C-890/U (fig. 50.1)

Do not attempt any repairs to the control box other than the replacement of meters. If meter replacement is necessary, proceed as follows:

a. Remove the four screws from the control box front panel and slide the panel assembly from the control box.

b. Disconnect the red and the yellow generator field leads from the terminal board, and disconnect the green tracer lead and the brown tracer lead from the reverse current relay and from the rheostat. Tag the terminals and wires to insure correct reinstallation.

c. Disconnect the governor lead wires from their respective terminals and tag the wires for identification.

d. Tag the leads attached to the faulty meter, disconnect the leads, and remove the meter.

e. Install the new meter and reassemble by reversing the disassembly procedures.

Page 82. Fig. 50. Insert figure 50.1 after figure 50.

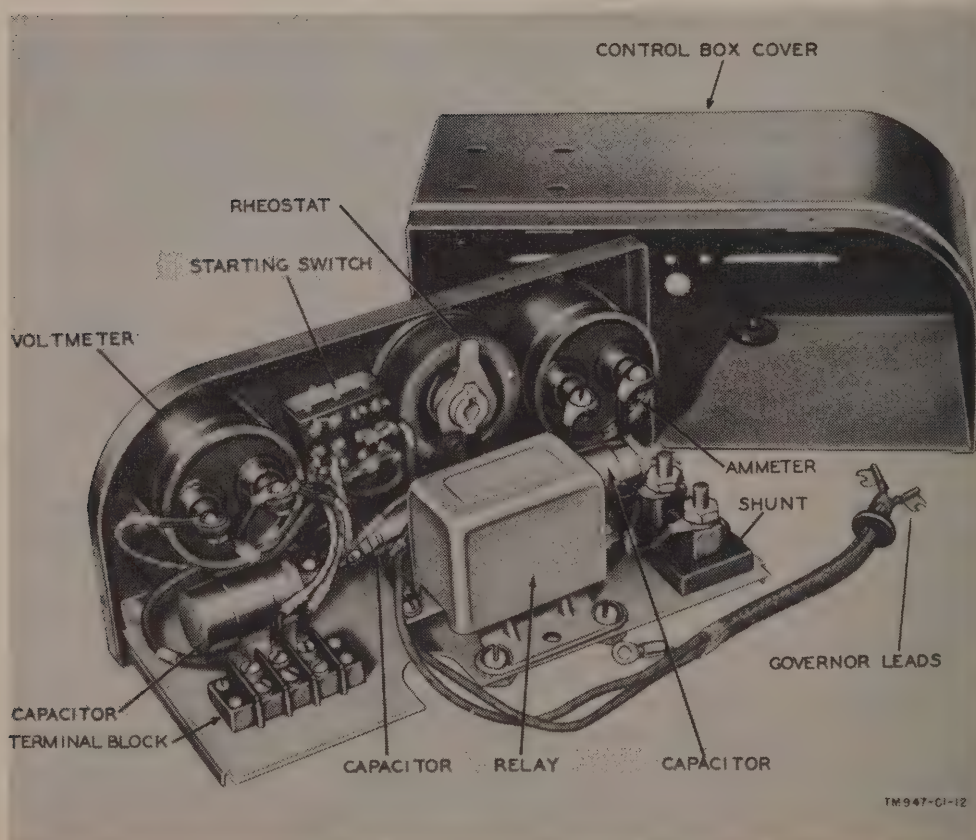


Figure 50.1. Power Unit PE-210-B, Generator Control C-890/U.

Page 86. App I. Par. 2. Delete paragraph 2 and substitute the following:

2. Identification Table of Parts for Power Unit PE-210-B

2. Identification Table of Parts for Power Unit PE-210-B

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	POWER UNIT, gasoline: Sig C Power Unit PE-210-B; 450 w, 15 v, 30 amp, dc; 18 $\frac{1}{4}$ " lg x 12" wd x 12 $\frac{3}{16}$ " h; Sig C Generator GN-52-B, directly coupled to Sig C Engine GE-12-G; 3000 rpm; self-excited; air cooled; rope starting.	Generates dc for battery charging.	3H4600-210
	ENGINE, gasoline: Sig C Engine GE-12-G; 1 $\frac{1}{4}$ hp at 3600 rpm, 1 cyl, 2 cyc, horiz; 2" bore x 1 $\frac{1}{2}$ " stroke; air cooled; flywheel magneto ignition; rope starting; elec governor.	Provides power to drive generator.	3H1912G
	GENERATOR, DC: Sig C Generator GN-52-B; 450 w, 15 v, 30 amp, dc; 3600 rpm; self-excited; 6" dia x 8 $\frac{3}{4}$ " lg o/a.	Generates dc.	3H2352B
	ENGINE GROUP		
	ENGINE, skeleton: incl helicoil inserts and spark plug adapter; does not incl carburetor, air cleaner, muffler, governor, fuel tank, tool box, tools, running spares, or canvas cover; 1 $\frac{1}{4}$ hp at 3600 rpm; 1 cyl, 2 cyc, air cooled, flywheel magneto ignition; 2" bore x 1 $\frac{1}{2}$ " stroke.	Basic component of Sig C Engine GE-12-G.	3H1922-1
	ADAPTER, bearing: engine rear bearing support; irregular oblong shape; 4 $\frac{5}{16}$ " lg x 3 $\frac{1}{16}$ " wd x 1 $\frac{5}{64}$ " thk; p/o Sig C Power Unit PE-210-B.	Provides support for rear engine bearing.	3H5J-1
	ADAPTER, exhaust pipe: die-cast Alcoa alloy, zinc chromate finish; bowl shaped w/connecting neck to mtg flange; 4 $\frac{3}{32}$ " lg x 3 $\frac{1}{4}$ " wd x 1 $\frac{5}{8}$ " h o/a; mts w/two .275" dia mtg holes; trade mark and part #2607 cast on inner part of bowl.	Provides exhaust outlet from cylinder.	3H1912B/H15

ADAPTER, spark plug: bushing closed one end, closed end drilled w/12 holes; screws into cyl head.	Acts as shield to prevent fouling of spark plug.	3H5J
BEARING, ball: single row radial; unshielded.	Antifriction support for engine crankshaft.	3H4575A/199
COCK, drain: removable screw plug; brass; T handle; single $\frac{1}{8}$ " male std pipe thd; $1\frac{3}{16}$ " lg; Jmco #05459.	Provides drain for engine crankcase.	3H1912A/C35
CRANKSHAFT: steel; mtd on ball bearings, one ea end; male spline on one end; Jmco #A-2122-A.	Converts reciprocating motion of piston connecting rod assembly to rotary motion.	3H1912A/C70
GASKET: crankcase head; vellumoid; $3\frac{7}{16}$ " lg x 3" wd x .015" thk; 4 holes.	Provides seal between cylinder and crankcase.	3H1912A/G5
GASKET: exhaust flange; asbestos millboard; $2\frac{15}{16}$ " lg x $1\frac{5}{32}$ " wd x $\frac{1}{16}$ " thk; 3 holes.	Provides seal between cylinder and exhaust flange.	3H1912B/G3
GASKET: intake passage; asbestos millboard; $2\frac{1}{16}$ " lg x $2\frac{1}{4}$ " wd x $\frac{1}{32}$ " thk; 7 holes.	Provides seal between cylinder and intake passage cover.	3H1912B/G1
GASKET: fan housing plate; vellumoid; 3" lg x $2\frac{1}{8}$ " wd x .015" thk; 3 holes.	Provides seal between crankcase and magneto backplate.	3H1912A/G6
GASKET: cylinder head; steelbestos, graphite coated; $2\frac{5}{8}$ " lg x $2\frac{5}{8}$ " wd x $\frac{1}{16}$ " thk; 1 cyl opening; Jmco #04371-A.	Provides seal between cylinder head and cylinder.	3H1912A/G4
GASKET: carburetor adapter; compressed asbestos; $2\frac{13}{16}$ " lg x $1\frac{7}{8}$ " wd x .028/.036" thk; 5 holes; Jmco #04060.	Provides seal between crankcase and carburetor adapter.	3H1912A/G3
GASKET: cyl mtg; vellumoid; $2\frac{15}{16}$ " lg x $2\frac{15}{16}$ " wd x .015" thk; 5 holes.	Provides seal between cylinder and crankcase.	3H1912A/G2
HEAD, cylinder: die-cast Alcoa alloy; $4\frac{1}{8}$ " dia x $1\frac{1}{4}$ " thk o/a; rd w/16 rows of fins on top; w/helicoil inserts and spark plug adapter; Jmco #A-3539.	Provides covering for cylinder opening.	3H2500-13

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	NUT, hexagonal: 5/16"-24 NF 3/8" d on bottom for cyl head stud, drilled and tapped #10-24 on top for baffle screw.	Secures cylinder head to cylinder.	6L3505-24-9
	NUT, hexagonal: 5/16"-18 NCT-2; 1/2" thk; 1 1/64" across flats.	Secures cylinder to crankcase.	6L3505-18-4Z
	PIN: cotter; steel; 3/32" dia x 3/4" lg o/a.	Secures piston pin in piston.	6L974-6-48
	PIN, wrist: connecting rod to piston; steel; std; Jmco #05213.	Provides axle through which piston end of connecting rod is connected to piston.	3H1912A/P22
	PISTON, engine: metal ring seal; std; 3 ring grooves; 2" dia x 2 1/2" lg.	Receives impulse caused by combustion of fuel within combustion chamber and transmits it to crankshaft through the wrist pin and connecting rod assembly.	3H4216.6
	PLUG, spark: 14 mm mach thd; hot type; 13/16" hex.; integrally shielded and suppressed aircraft type; 5/8"-24 NFT-3 shielding connection; 3/8" dia x 1 3/4" wire socket; Champion #XEJ-11.	Provides means for introducing ignition spark into combustion chamber.	3H4412-8.1
	PULLEY, starter: 1 groove, notched for starting rope.	Provides means for cranking engine.	3H1912A/P55
	RING SET, piston: 3 compression type rings; std; 2" dia, .090" wd.	Provide seal between cylinder and piston.	3H1912A/R21
	ROD ASSEMBLY, connecting: crankshaft to piston; p/o Sig C Engine GE-12-G.	Transfers reciprocating motion of piston to crankshaft.	3H1912A/R31

SCREW, machine: slot drive; Fil H; steel; $\frac{1}{4}$ "-20 NCT-2; $\frac{7}{8}$ " lg; $\frac{7}{8}$ " lg thd.	Mounts magneto backplate to crankcase.	6L7920-14.3S
SCREW, machine: slot drive; RH; steel; #10-24 NCT-2; $\frac{5}{16}$ " lg; $\frac{5}{16}$ " lg thd.	Mounts cylinder head baffle to cylinder head.	6L7024-5.49S
SCREW, machine: slot drive; RH; steel; #10-24 NCT-2; $\frac{1}{4}$ " lg; $\frac{1}{4}$ " lg thd.	Mounts fan housing to magneto backplate.	6L7024-4.49S
SCREW, machine: slot drive; RH; steel; #8-32 NCT-2; $\frac{1}{4}$ " lg; $\frac{1}{4}$ " lg thd.	Mounts fan housing to cylinder block.	6L6832-4.1P
SCREW, machine: slot drive; RH; steel; #6-32 NCT-2; $\frac{5}{16}$ " lg; $\frac{5}{16}$ " lg thd.	Mounts intake passage cover to cylinder.	6L6632-5.1SP
SCREW, machine: hex. head; steel; $\frac{5}{16}$ "-18 thd; $\frac{3}{4}$ " lg; $\frac{3}{4}$ " lg thd.	Mounts bearing adapter to crankcase.	6L7918-5-12.81C
SEAL, oil: steel and rawhide; .668" ID x 1.254" OD x $\frac{3}{8}$ " thk; mtd on brg adapter and magneto backplate; spring loaded seal; Natl Mtr Brg #50469; Jmco #04399-A.	Prevents oil seepage at crankshaft bearing.	3H1912A/S3
WASHER, flat: 1" OD x $2\frac{1}{32}$ " ID x $\frac{3}{64}$ " thk.	Spaces bearings and crankpin on crankshaft.	6L58030
WASHER, lock: steel; rd, .320" ID, .594" OD, .030" thk; shake-proof type, internal twisted teeth.	Secures cylinder head fastenings.	6L72218C
WASHER, lock: steel; rd, .256 ID, .466" OD, .025" thk; shake-proof type, internal twisted teeth.	Secures backplate to crankcase mounting fastenings.	6L72214
WASHER, lock: steel; rd, .195 ID, .395" OD, .022" thk; shake-proof type, external twisted teeth.	Secures fan housing to backplate fastenings.	6L71110C
WASHER, lock: steel; rd, .320" ID, .588" OD, .030" thk; shake-proof type, external teeth.	Secures cylinder block to crankcase fastenings.	6L72118C
WASHER, lock: steel; rd, .168" ID, .325" OD, .020" thk; shake-proof type, internal twisted teeth.	Secures fan housing to cylinder block fastenings.	6L72208C

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	WASHER, lock: steel; rd, .195" ID, .370" OD, .022" thk; shakeproof type, internal twisted teeth.	Secures cylinder head to cylinder head baffle fastenings.	6L72210C
	WASHER, lock: steel; rd, .141" ID; .267" OD, .040" thk; split-ring type.	Secures intake passage cover fastenings.	6L71002-14
	WASHER, lock: steel; rd, .256" ID, .494" OD, .025" thk; shakeproof type, external teeth.	Secures generator to crankcase adapter fastenings.	6L72114C
	WASHER, lock: steel; rd, $\frac{7}{16}$ " ID, .078" OD, .085" thk; split-ring type.	Secures starter pulley fastening.	6L71007C
	WASHER, lock: steel irregular shape; $1\frac{7}{32}$ " wd x $1\frac{15}{32}$ " lg x .0359" thk; $\frac{15}{64}$ " dia hole; 2 locking outer prongs bent over head of cap screw; Jmco #06721.	Secures connecting rod cap fastenings.	6L71004-28
	WASHER, spring: spring steel; 1" OD, $2\frac{3}{32}$ " ID in flat, .030" thk, $\frac{1}{16}$ " concave; Jmco #03950.	Secures magneto cam.	6L73041
	WASHER, lock: steel; rd, .168" ID, .325" OD, .020" thk; shakeproof type, internal twisted teeth.	Secures shorting bar to backplate fastenings.	6L72208C
	AIR CLEANER GROUP		
	CLEANER, air: cartridge type; aluminum; replaceable element; $3\frac{1}{2}$ " h x $2\frac{7}{16}$ " OD; Dollinger Corp model C-02; Jmco #A-2129.	Filters air entering engine through carburetor.	3H1912A/C30
	ELEMENT, air cleaner: felt; re-useable; cylindrical, $3\frac{1}{2}$ " h, $2\frac{1}{4}$ " OD; Jmco #A-2147.	Filters air passing through air cleaner.	3H1912A/C18

GASKET, cork: compressed cork; 1 hole; $1\frac{1}{16}$ " OD, $3\frac{1}{32}$ " ID, $\frac{3}{32}$ " thk; Jmco #05225.	Seal between air cleaner and carburetor air intake.	3H1912A/G8
STUD: steel, zinc pl, cronak dip; $6\frac{1}{8}$ " lg o/a; thd ea end $\frac{3}{4}$ " lg; #12-24 NCT-2; Jmco #07731.	Mounts air cleaner to air cleaner elbow.	3H1912A/S63
WASHER, flat: iron, zinc pl, cronak dip; rd, $\frac{1}{4}$ " ID, $\frac{9}{16}$ " OD, $\frac{3}{64}$ " thk.	Secures air cleaner adapter mounting fastenings.	6L6004-1
WASHER, lock: steel, zinc pl, cronak dip; rd, .221" ID, .394" OD, .022" thk; shakeproof type, internal twisted teeth.	Secures air cleaner to air cleaner elbow fastenings.	6L72212C

CARBURETOR GROUP

CARBURETOR: gravity feed; horizontal draft; 4" lg x $3\frac{1}{4}$ " wd x 3" h o/a; Tillotson #MD49A, less air cleaner and elbow; Jmco #A-3754.	Meters and mixes fuel and air entering engine.	3H753-4.1
ADAPTER, carburetor: cast aluminum, anodize finish; irregular oblong shape; $4-1\frac{3}{16}$ " lg x $2\frac{7}{16}$ " wd x $\frac{9}{16}$ " thk; Jmco #2957.	Spacer and mounting for carburetor and governor.	3H5J-2
ADAPTER, breather pipe: cast aluminum, anodize finish; 90° elbow; $1\frac{3}{8}$ " dia x $1\frac{3}{4}$ " wd x 2" h o/a; Jmco #2956.	Air cleaner mounting elbow.	3H5J-3
BOWL, carburetor: c/o float bowl assy (Jmco #2336), float assy (Jmco #A-2339), and float bowl cover assy (Jmco #A-2340); die-cast aluminum; irregular shape.	Provides fuel reservoir for carburetor.	3H1912B/B20
FLOAT, carburetor: hollow annular ring w/lever; $1\frac{13}{16}$ " wd x 2" lg x $\frac{7}{8}$ " h; 1 lever fulcrum hole $\frac{3}{32}$ " dia x $\frac{9}{16}$ " lg; p/o Tillotson carburetor MD49A; Tillotson #07804.	Regulates fuel level in carburetor float bowl by controlling opening and closing of float bowl valve.	3H2050-4

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	GASKET, set: for Tillotson carburetor MD49A; cork and plant fiber; 1 float cover gasket (Tillotson #07903), 1 needle valve packing (Tillotson #0705), 1 packing gland gasket (Tillotson #0676), 1 inlet seat gasket (Tillotson #02510), 1 bypass plug screw gasket (Tillotson #07900); Tillotson #09247; Jmco #A-3941.	Provides spare parts for carburetor.	3H2155-14
	GASKET: carburetor to adapter; gaskoid; irregular shape; $2\frac{3}{8}$ " lg x $1\frac{7}{16}$ " wd x .016/.019" thk; 3 holes; Jmco #07732.	Seal between carburetor and carburetor adapter.	3H2154-25
	GASKET: air cleaner elbow; gaskoid; $1\frac{3}{4}$ " lg x 1" wd x .016/.019" thk; 3 holes.	Seal between carburetor and air cleaner elbow.	3H2154-4
	GASKET: carburetor mtg; vellumoid; irregular shape; $2\frac{13}{16}$ " lg x $1\frac{11}{16}$ " wd x $\frac{1}{32}$ " thk; 5 holes.	For carburetor adapter.	3H1912A/G3
	LEVER: throttle control; cast brass; oblong; $\frac{1}{16}$ " saw cut in center.	Operates throttle control from governor.	3H2681.9
	MAINTENANCE PARTS KIT: c/o choke friction pin, spring, screw, float lever pinion screw, fuel bowl drain screw (small), idle adjusting screw w/spring, idle tube, inlet connection screen, inlet seat, needle seat and gasket, main adjusting screw, main nozzle, throttle shaft return spring, throttle shutter screw, gasket, and packing set.	Provides replacement parts.	3H2700.10
	NUT, hexagon: steel, zinc pl, cronak dip; $\frac{1}{4}$ "-20 NCT-2; $1\frac{3}{64}$ " thk; $\frac{7}{16}$ " across flats.	Secures adapter to carburetor.	6L3504-20-1
	NUT, packing: hex.; brass; $\frac{5}{16}$ "-32 NFT-2; $\frac{9}{32}$ " thk; $\frac{3}{8}$ " across plate; Tillotson #0703.	Closure for packing seal and adjusting screw.	3H6226/S9

PLUG, machine thread: fuel bowl plug screw (large); brass; $\frac{1}{2}$ " dia x $\frac{1}{4}$ " lg; slot drive; p/o Tillotson carburetor MD49A; Tillotson #07896.	Plugs hole in carburetor fuel bowl.	3H4419-9
PLUG, machine thread: fuel bowl plug screw (med); brass $\frac{5}{16}$ " lg x $\frac{5}{16}$ " dia, $\frac{5}{16}$ -24 NFT-2; p/o Tillotson carburetor MD49A; Tillotson #01102.	Plugs hole in carburetor fuel bowl.	3H4419-10
PLUG, machine thread: main nozzle channel plug; slot drive; $\frac{7}{32}$ " lg x $\frac{1}{4}$ " dia, $\frac{1}{4}$ -28 NFT-2; p/o Tillotson carburetor MD49A; Tillotson #02395.	Plugs hole in main fuel channel.	3H4419-8
SCREW, machine: slot drive; straight side, Bind H; steel, zinc pl; #8-32 NCT-2; $\frac{5}{32}$ " lg; $\frac{5}{32}$ " full thd; $\frac{1}{16}$ " thk x $\frac{1}{4}$ " dia head; p/o Tillotson carburetor MD49A; Tillotson #05430.	Holds choke shuttle to choke shaft.	6L6632-3.3S-2
SCREW, machine: slot drive; Fil H; steel, zinc pl, cronak dip; $\frac{1}{4}$ -20 NCT-2; $\frac{7}{8}$ " lg; $\frac{7}{8}$ " lg thd.	Mounts carburetor to adapter.	6L4904-14.3S
SCREW, machine: slot drive; Fil H; steel, zinc pl, cronak dip; #8-32 NCT-2; $\frac{7}{8}$ " lg; $\frac{7}{8}$ " full thd; lockwasher attached; p/o Tillotson carburetor MD49A; Tillotson #08872.	Mounts float bowl to carburetor body.	6L20980-14.3Z
SCREW, machine: slot drive; Fil H; steel, zinc pl, cronak dip; #12-24 NCT-2; $\frac{5}{8}$ " lg; $\frac{5}{8}$ " lg thd.	Mounts carburetor adapter to crankcase.	6L7224-10.3S1
SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #8-32 NCT-2; $\frac{5}{8}$ " lg; $\frac{5}{8}$ " lg thd.	Secure air cleaner elbow to carburetor.	6L6832-10.49S
SCREW, machine: slot drive; RH; steel, dulite; #6-32 NCT-2; $\frac{5}{16}$ " lg o/a.	Mounts reed valve to carburetor adapter.	6L6632-5.49S
VALVE, reed: Swedish, high carbon, blue tempered, spring steel; engine intake check valve.	Prevents backflow of fuel mixture from crankcase through carburetor.	3H1912A/V1
WASHER, lock: steel, zinc pl, cronak dip; rd .256" ID, .466" OD, .025" thk; shakeproof type, internal twisted teeth.	Secures fastenings for carburetor adapter to carburetor.	6L72214

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	WASHER, lock: steel, zinc pl; rd .068" ID, .325" OD, .020" thk; shakeproof type, internal twisted teeth.	Secures float bowl to carburetor body fastenings.	6L72208
	WASHER, lock: steel, zinc pl, cronak dip; rd .221" ID, .394" OD, .022" thk; shakeproof type, internal twisted teeth.	Secures carburetor adapter to crankcase fastenings.	6L7221-2C
	WASHER, lock: steel, zinc pl, cronak dip; rd .168" ID, .325" OD, .020" thk; shakeproof type, internal twisted teeth.	Secures air cleaner elbow to carburetor fastenings.	6L72208
	WASHER, lock: steel; dulite finish; rd .142" ID, .275" OD, .018" thk; shakeproof, internal twisted teeth.	Secures reed valve and clamp to carburetor fastenings.	6L72106C
	MAGNETO GROUP		
	BRUSH, electrical contact: radio suppression, magneto cam ground brush.	Provides ground for magneto cam.	3H2351B/B10
	CAM, magneto: steel; hardened; chrome pl; rd cam offset from center; $1\frac{1}{16}$ " lg, $\frac{15}{16}$ " OD on cam end, $\frac{7}{8}$ " OD on free end, $1\frac{1}{16}$ " ID; mts to crankshaft w/#3 Woodruff key; Wico #7358.	Actuates magneto breaker points.	3H680-2
	CAPACITOR, fixed: 1 section; 160,000 uuf min, 200,000 uuf max; working voltage, 200 v dc; Dubilier #IN2P18.	Suppresses sparking at magneto breaker points.	3H2699-9/C1
	COIL, magneto: ignition type; copper wire, tape wrapped and varnished; cylindrical air core w/2 wire leads $2\frac{1}{8}$ " dia x $1\frac{1}{4}$ " lg w/ $\frac{5}{8}$ " x $\frac{5}{8}$ " cored hole for mtg; fits over stator lamination; Wico #X6985.	Generates voltage for ignition.	3H986-1

CONTACT ASSEMBLY, magneto: c/o breaker plate w/contact points, felt cam wiper and 1 breaker plate spring, 1 breaker arm w/point and connecting lead wire; steel and brass breaker plate, tungsten points; phenolic breaker arm, fungus treated; mts to stator plate w/#10-32 x $\frac{5}{16}$ " screw; Wico #X5861; Jmco #A-3920.

FLYWHEEL: mts magneto magnets, cools, and balances engine; aluminum, die cast; rd w/fan blades on outside; $6\frac{1}{2}$ " dia x $2\frac{11}{16}$ " thk; mts to taper end of crankshaft w/#3 Woodruff key; Wico #Y4988.

KEY, machine: steel; $\frac{1}{8}$ " thk x $\frac{3}{4}$ " lg; Woodruff #7.

NUT, hexagon: steel, cad pl; #6-32 NCT-2; $\frac{3}{32}$ " thk; $\frac{5}{16}$ " across flats; Wico #4587.

NUT, hexagon: steel, zinc pl, cronak dip; #6-32 NCT-2; $\frac{7}{64}$ " thk; $\frac{9}{16}$ " across flats.

SCREW, machine: slot drive; pan head, semifinished; steel, zinc pl and cronak dip finish; #8-32 NCT-2; $\frac{7}{16}$ " lg; $\frac{7}{16}$ " lg thd; Wico #6017.

SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #6-32 NCT-2, $\frac{3}{8}$ " lg; $\frac{3}{8}$ " lg thd.

SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #8-32 NCT-2; $\frac{3}{16}$ " lg; $\frac{3}{16}$ " lg thd.

SCREW, machine: slot drive; pan head; steel, cad pl; #10-32 NCT-2; $\frac{5}{16}$ " lg; $\frac{7}{32}$ " lg thd; #10 kantlink lockwasher permanently fastened to screw: Wico #5806.

SCREW, machine: slot drive; pan head; steel, cad pl; #6-32 NCT-2; $\frac{5}{16}$ " lg; $\frac{1}{4}$ " lg thd; #8 kantlink lockwasher permanently fastened to screw; Wico #5431.

Interrupts primary magneto circuit.

3H1032A-13

Carries engine through nonpower producing stroke, provides cooling air for engine, and contains magnetic field of magneto.

3H2103W

Prevents flywheel from turning on crankshaft.

6L995-7

Mounts capacitor to magneto stator.

6L3106-32.1S

Locknut for spark plug shielding on backplate.

6L3606-32-19

Mounts capacitor to magneto stator.

6L6632-7.86SF

Secures ignition cable shielding to backplate.

6L6632-6.49S

Secures shorting switch lever.

6L6832-3.87

Mounts breaker arm and plate assembly to stator.

6L20910-5.93

Fastens lead from coil and breaker points to capacitor.

6L20906-5.93

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	SCREW, machine: slot drive; Fil H; steel, zinc pl, cronak dip; 14"-20 NCT-2; $\frac{1}{2}$ " lg; $\frac{1}{2}$ " lg thd.	Mounts magneto stator to back-plate.	6L7920-408.3E1
	STATOR, magneto: flywheel type; plate mtd w/magneto coil, capacitor, stop switch plate, breaker arm and plate w/contact points, felt cam oiler, and coil lead wires; irregular shape; $4\frac{5}{8}$ " lg x $4\frac{9}{32}$ " wd x $2\frac{1}{8}$ " h o/a; mtd w/two $\frac{1}{4}$ "-20 NCT-2 Fil H screws; Wico # X7451.	Provides ignition spark.	3H5340D
	WASHER, lock: steel, zinc pl, cronak dip; rd .256" ID, .670 OD, .035 thk; shakeproof type, external-internal teeth.	Secures stator to backplate fastenings.	6L72114-20
	WASHER, lock: steel, dulite; rd .140" ID, .251 OD, .031" thk; split-ring type.	Secures capacitor and stop switch plate to stator.	6L71002-15
	WICK, lubricating: magneto cam; grease impr; $1\frac{1}{16}$ " lg x $\frac{7}{16}$ " wd x $\frac{5}{32}$ " thk; Wico #6984.	Lubricates magneto cam.	6Z9446-2
	GOVERNOR GROUP		
	BOARD, terminal: mtg strip for clip and term.; JAN-P-13; JAN-T-152; $\frac{3}{4}$ " between mtg holes; $\frac{25}{32}$ " between term. holes; paper base micarta; $1\frac{1}{8}$ " wd x $2\frac{1}{32}$ " h x $\frac{1}{4}$ " thk o/a; mts w/2 holes $1\frac{1}{64}$ " diam $\frac{3}{4}$ " between centers; Jmco #05946.	Insulator for fastening solenoid terminals and lead clip.	3Z770-2.90
	COIL, solenoid: u/w solenoid; silica steel shell, copper wire winding; glass or stainless steel sleeve cylindrical; $1\frac{1}{8}$ " dia x $2\frac{1}{4}$ " lg; mts in governor housing; Jmco #A-2341.	Exerts magnetic pull on plunger which actuates throttle.	3H5248-13

GOVERNOR: engine speed control; aluminum; coil, 5 ohms, 5 v, 1 amp; $5\frac{1}{4}$ " lg x $1\frac{5}{8}$ " wd x $1\frac{5}{16}$ " h, w/2 mtg holes #8-32 NC.
 LEVER, throttle: cast brass; oblong shape, $\frac{1}{16}$ " saw cut in center; $2\frac{1}{32}$ " lg x $\frac{3}{8}$ " wd x $\frac{9}{32}$ " h; mts to throttle shaft w/#8-32 screw; pinned to Jmco #05901 governor link; Jmco #2958.
 MOUNTING: A bkt for governor adj spring screw.

NUT, knurler: brass; #6-32 NC; $\frac{3}{16}$ " thk; $\frac{5}{16}$ " dia; knurled top, 90° V groove through center of bottom face to lock in place; Jmco #06594.

SCREW, adjusting: permits adjustment of governor plunger spring.

SCREW, machine: slot drive; Fil H; steel, zinc pl, cronak dip; #8-32 NCT-2; $\frac{1}{2}$ " lg, $\frac{1}{2}$ " lg thd.

SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #6-32 NCT-2; $\frac{3}{8}$ " lg; $\frac{3}{8}$ " lg thd.

SCREW, machine: slot drive; Fil H; steel, zinc pl, cronak dip; $\frac{1}{4}$ "-20 NCT-2; $\frac{1}{2}$ " lg; $\frac{1}{2}$ " lg thd.

SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #8-32 NCT-2; $\frac{5}{8}$ " lg; $\frac{5}{8}$ " lg thd.

SPRING: helical expansion type; .016 wire size, phosphor bronze spring wire; .190" OD x $\frac{7}{8}$ " lg; 41 turns; parallel eye term; $\frac{5}{64}$ " dia; mts w/.0625" dia pin; c/o spring w/pin; Jmco #07897-05899.

WASHER: brass, tin pl; rd .172" ID, $\frac{3}{8}$ " OD, .032" thk.

WASHER, lock: steel, zinc pl, cronak dip; rd .168" ID, .325" OD, .020" thk; shakeproof type, internal twisted teeth.

Controls engine speed and generator voltage. 3H2475-6

Transmits governor action to throttle. 3H2681.2

Supports governor adjusting spring and screw. 3H3900.10

Adjusts solenoid plunger spring. 6L3406-32K.3

6L4716-11

Mounts solenoid throttle lever to carburetor throttle shaft. 6L832-8.12S

Mounts generator lead to solenoid. 6L6632-6.49S

Mounts solenoid to adapter. 6L7920-4-8.3E1

Mounts lead clip to insulating block on solenoid. 6L6832-10.49S

Governor plunger return spring. 3H5255.3

Mounts under lead clip on solenoid insulator strip. 6L58023-54

Secures fastenings for lead clip. 6L72208C

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	WASHER, lock: steel, zinc pl, cronak dip; rd .256" ID, .670" OD, .035" thk; shakeproof type, internal-external teeth.	Secures solenoid to adapter fastenings.	6L72114-20
	WASHER, lock: steel, zinc pl, cronak dip; rd .142" ID, .275" OD, .018" thk; shakeproof type, internal twisted teeth.	Secures generator to solenoid lead fastening.	6L72106C
	WASHER, lock: steel, zinc pl, cronak dip; rd .168" ID, .325" OD, .020" thk; shakeproof type, internal twisted teeth.	Secures solenoid throttle lever fastening.	6L72208
	FUEL TANK GROUP		
	CAP, fuel container (tank): measuring cup for lubricating oil attached steel tube, zinc pl, cast brass cap; rd w/protruding lugs on top of cap; 2 $\frac{5}{8}$ " wd x 2 $\frac{1}{4}$ " lg x 2 $\frac{3}{8}$ " h.	Cap for fuel tank filler opening and cup for measuring lubricating oil.	3H685.2-2
	COCK, air vent: rotary plug type valve; single male, $\frac{1}{8}$ "-27 male pipe thd.	Air vent for fuel tank.	6Z2118-3
	COCK, drain: removable screw plug type; $\frac{1}{8}$ " male std pipe thd.	Drain cock for fuel tank.	3H1912A/C35
	CONTAINER (fuel tank): steel, stainless, #22 U. S. gage; 1 gal; oval oblong shape; 12 $\frac{19}{32}$ " lg x 6 $\frac{5}{32}$ " wd x 5 $\frac{3}{64}$ " h; mts to loop frame w/2 steel straps and 4 studs; p/o Sig C Power Unit PE-210-B; Jmco #A3849.	Storage container for fuel and lubricant mixture.	3H1095.4
	FITTING, pipe: 45° street elbow; brass; $\frac{1}{8}$ " male x $\frac{1}{8}$ " female IPS; Weatherhead #3350X2; Jmco #08124.	Extension for fuel tank drain cock.	6Z3888-107

FITTING, tubing: 90° elbow; brass; for $\frac{3}{16}$ " dia tubing; $\frac{3}{8}$ "-24 female thd, inverted flare one end, $\frac{1}{8}$ " male std pipe thd other end; p/o Sig C Power Unit PE-210-B; Weatherhead #100-4003; Jmco #06781.

GASKET: corprene; 1 hole; $2\frac{1}{4}$ " OD, $1\frac{3}{4}$ " ID, $\frac{1}{8}$ " thk.

LINE, fuel: straight; $\frac{3}{8}$ " OD, $12\frac{1}{2}$ " lg; flexible wall, comp, hose neoprene covered; $\frac{3}{8}$ "-24 NFT-2; std; inverted type, brass flare nut both ends; resists water, gasoline, and oil; p/o Sig C Power Unit PE-210-B; Jmco #A-3877.

VALVE, angle: $\frac{1}{4}$ " male std pipe thd screen one end, other end tapped $\frac{3}{8}$ "-24 thd for inverted flare fitting.

ENGINE SUB-BASE GROUP

BASE, engine: steel; $9\frac{7}{16}$ " wd x $9\frac{1}{8}$ " lg x $1\frac{5}{32}$ " h o/a; mts w/four $1\frac{7}{64}$ " dia holes, $2\frac{1}{64}$ " dia off center for engine mtg; Jmco #A-3710.

MOUNT, vibration: square mtg; $1\frac{3}{4}$ " lg x $1\frac{3}{4}$ " wd x $\frac{5}{8}$ " thk o/a.

SCREW, machine: hex. hd; steel, zinc pl, cronak dip; $\frac{5}{16}$ "-18 NCT-2; $\frac{5}{8}$ " lg; $\frac{5}{8}$ " lg thd.

SCREW, machine: hex. hd; steel, zinc pl, cronak dip; $\frac{1}{4}$ "-20 NCT-2; $1\frac{1}{4}$ " lg; $\frac{3}{4}$ " lg thd.

WASHER, lock: steel, zinc pl, cronak dip; rd .320" ID, .588" OD, .030" thk; shakeproof type, external teeth.

WASHER, lock: steel, zinc pl, cronak dip; rd .032" ID, .594" OD, .030" thk; shakeproof type, internal twisted teeth.

Fuel line to carburetor connection. 6Z3888A-11

Seal for fuel tank filler cap. 3H1912B/G2

Fuel line between fuel tank and carburetor. 3H2689.1-39

Fuel shut-off valve. 3H1922/V1

Mounts engine and generator to loop frame. 3H175-4

Shock mounting for engine. 6Z8502-1

Secures crankcase to engine base. 6L7918-5-10.1s

Mounts engine base to shock mounts. 6L7920-4-20.18C

Secures crankcase to engine base to loop frame. 6L72118C

Secures crankcase to engine base fastenings. 6L72218C

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	LOOP FRAME GROUP		
	SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #8-32 NCT-2; $\frac{1}{4}$ " lg; $\frac{1}{4}$ " lg thd.	Secures shock mounts to loop frame.	6L6832-4.1P
	SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #8-32 NCT-2; $\frac{3}{8}$ " lg; $\frac{3}{8}$ " lg thd.	Mounts shock mounts to loop frame.	6L6832-6.49S
	SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #10-24 NCT-2; $\frac{5}{16}$ " lg; $\frac{5}{16}$ " lg thd.	Mounts tool and spare parts box to loop frame.	6L7024-5.49S
	WASHER, flat: steel, zinc pl, cronak dip; flat disk, $1\frac{3}{8}$ " dia. x .0747" thk o/a; one .252"/.258" dia hole for mtg; Jmco #07707.	Prevents shock mount rebound.	6L58024-51
	WASHER, lock: steel, zinc pl, cronak dip; rd .256" ID, .494" OD, .025" thk; shakeproof type, external teeth.	Secures ground lead to loop frame and fuel tank fastening.	6L72114C
	WASHER, lock: steel, zinc pl, cronak dip; rd .195" ID, .395" OD, .022" thk; shakeproof type, external teeth.	Secures spare parts and tool box fastenings.	6L71110C
	WASHER, lock: steel, zinc pl, cronak dip; rd .168" ID, .370" OD, .020" thk; shakeproof type, external teeth.	Secures ground lead to shock mount fastenings.	6L71108C
	WASHER, lock: steel, zinc pl, cronak dip; rd .168" ID, .325" OD, .020" thk; shakeproof type, internal teeth.	Secures shock mount to loop frame fastenings.	6L72208C
	WIRE BRAID: tinned copper; $\frac{5}{16}$ " wd when flat; opens to $\frac{1}{4}$ " ID.	Suppression ground strap.	1F6C1-5

MUFFLER GROUP

GASKET: compressed asbestos; $2\frac{3}{4}$ " OD x $2\frac{9}{32}$ " ID x $\frac{1}{16}$ " thk; Jmco #05218.

MUFFLER: sheet steel; cylindrical; horizontal operating; $5\frac{27}{32}$ " h x $5\frac{1}{8}$ " wd x $4\frac{9}{16}$ " lg; $2\frac{1}{2}$ " dia flared inlet opening; $\frac{1}{4}$ " std male pipe thd outlet opening; $\frac{1}{4}$ " water drain hole on bottom; Nelson Muffler Corp #T-3071-D; Jmco #07887.

NUT, hexagon: brass; $\frac{1}{4}$ "-28 NFT-2; $\frac{1}{32}$ " thk; $\frac{7}{16}$ " across flats.

NUT, hexagon: steel, zinc pl, cronak dip; $\frac{1}{4}$ "-20 NCT-2; $\frac{1}{32}$ " thk; $\frac{7}{16}$ " across flats.

SCREW, machine: hex. hd; steel, zinc pl, cronak dip; $\frac{1}{4}$ "-20 NCT-2; $\frac{1}{2}$ " lg; $\frac{1}{2}$ " lg thd.

SCREW, machine: slot drive; hex. head; steel, zinc pl, cronak dip; $\frac{1}{4}$ "-20 NCT-2; $\frac{7}{8}$ " lg; $\frac{7}{8}$ " lg thd; $1\frac{3}{64}$ " thk head; $\frac{7}{16}$ " across flats; slotted; Jmco #08178.

STUD, muffler mtg: steel, zinc pl, cronak dip; $\frac{1}{4}$ " dia x $5\frac{3}{8}$ " lg; $\frac{1}{4}$ "-20 NCT $\frac{7}{8}$ " lg, one end, $\frac{1}{4}$ "-20 NFT, $\frac{5}{8}$ " lg, other end, chamfered both ends; Jmco #07889.

WASHER, lock: steel, zinc pl, cronak dip; rd .256" ID, .466" OD, .025" thk; shakeproof type, internal teeth.

WASHER, lock: steel, zinc pl, cronak dip; rd .256" ID, .466" OD, .025" thk; shakeproof type, internal teeth.

Seal between muffler body and exhaust flange.

3H2154.9-7

Silences engine exhaust.

3H3981-18

Secures muffler to exhaust flange.

6L3504-28.1

Secures muffler to engine base on loop frame.

6L3504-20G

Secures muffler to engine base on loop frame.

6L7920-4-8.81C

Mounts muffler adapter to cylinder.

6L7920-14.81S

Mounts muffler body to exhaust flange.

6L31186

Muffler flange to cylinder mounting.

6L72214

Muffler to engine base mounting.

6L72214

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	WASHER, lock: steel zinc pl, cronak dip; rd .256" ID, .670" OD, .035" thk; shakeproof type, internal-external teeth.	Muffler body to exhaust flange mounting.	6L72114-20
	GENERATOR GROUP		
	BEARING, ball: .5906" bore, 1.3780" OD, .567" wd; New Departure #88502.	Supports generator rotor shaft.	3H2351A/B10
	BRUSH, electrical: lv commutator brush.	Collects electrical current from armature.	3H2352/B5
	CAPACITOR, fixed: paper; 500,000 uuf $\pm 20\%$, -10% ; 150 vdcw.	Noise filter.	3DA500-217
	COUPLING, flexible: drive half; Jmco #A-3774.	Drives driven half of generator coupling.	3H2551-4
	CUSHION: flexible drive coupling.	Provides cushion between drive and driven half of coupling.	3H1420
	HUB, coupling: driven half of coupling; cylindrical w/12 fan blades and 6 holes to receive rubber cushions; $4\frac{3}{4}$ " dia x $1\frac{13}{16}$ " thk; mts to generator shaft w/#3 Woodruff key and two #10-32 NFT-2 Allen-head set screws; Jmco #3019.	Driven half of coupling; provides circulation of air to cool generator.	3H2551-8
	KEY, machine: #3 Woodruff; steel; $\frac{1}{8}$ " wd x $\frac{1}{2}$ " lg; Jmco #C-3942.	Secures driven half of coupling from turning on shaft.	6L995-3
	NUT, hexagon: steel, zinc pl, iridite finish; #10-24 NCT-2; $\frac{1}{8}$ " thk; $\frac{3}{8}$ " across flats.	Secures end bell through bolts.	

NUT, lock: palnut type; steel, zinc pl, iridite finish; $\frac{3}{32}$ " thk; $\frac{23}{64}$ " across flats.

ROTOR, generator: steel, brass, fiber, insulating varnish; 15 v dc, 30 amp 450 watt cont rating; 3000 rpm; $7\frac{3}{8}$ " lg x 3.595" dia o/a; mts in end bells on 2 ball bearings; Franklin Elec #B-2831.

SCREW, captive: slot drive; RH; steel, zinc pl, iridite finish; #10-24 NCT-2; $8\frac{1}{2}$ " lg; 1" thd lgth; head $1\frac{1}{16}$ " dia x .136" thk; .159" / .162" dia body x $7\frac{1}{2}$ " lg; Franklin Elec #A-1075.

SCREW, machine: hex. head; steel, zinc pl, cronak dip; $\frac{1}{4}$ "-20 NCT-2; $\frac{3}{4}$ " lg; $\frac{3}{4}$ " lg thd.

SCREW, machine: slot drive; RH; steel, zinc pl, iridite finish; #6-32 NCT-2; $\frac{3}{8}$ " lg; $\frac{3}{8}$ " lg thd.

SCREW, machine: slot drive; RH; steel, zinc pl, iridite finish; #8-32 NCT-2; $\frac{3}{8}$ " lg; $\frac{3}{8}$ " lg thd.

SCREW, machine: slot drive; FH; steel, zinc pl, iridite finish; #10-32 NCT-2; $1\frac{1}{16}$ " lg; $1\frac{1}{16}$ " lg thd.

SCREW, machine: slot drive; sp Bind H, steel, zinc pl, iridite finish; $\frac{5}{16}$ "-18 NCT-2; $\frac{5}{8}$ " lg; $\frac{5}{8}$ " lg thd; $\frac{3}{32}$ " thk head, $\frac{3}{4}$ " dia of head

SCREW, machine: slot drive; Bind H; brass; #8-32 NCT-2; $\frac{5}{16}$ " lg; $\frac{5}{16}$ " lg thd.

SCREW, set: Allen-head; steel; #10-32 thd; $\frac{3}{16}$ " lg; cup point; Jmco #C-5485.

WASHER, flat: brass; rd .193 ID, $\frac{7}{16}$ " OD, .036" thk.

WASHER, lock: steel, zinc pl, iridite finish; rd .178 ID, .296" OD, .040" thk; split-ring type.

Locknut for end bell through bolts.	6L3660-24-8
Generator voltage.	3H5199-9
Interlock end bells.	6L4770-136.49S
Mounts generator to bearing adapter.	6L7920-4-12.81CS
Mounts capacitor to end bell.	6L6632-6.49S
Mounts outer end bell cover.	6L6832-6.49S
Mounts bearing retainers to outer end bell.	6L7032-11.78
Retains rotor bearing on shaft.	6L20925-10.96
Mounts brush terminal to brush holder.	6L6832-5.8
Secures driven disk to generator shaft.	6L18510-4.39
Mounts under head and nut of through bolts.	6L50010
Mounts brush terminal to brush holder.	6L71003-22

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	WASHER, lock: steel, zinc pl, iridite finish; rd .168" ID, .325" OD, .020" thk; shakeproof type, internal teeth.	Mounts outer end bell cover.	6L72208
	WASHER, lock: steel, zinc pl, iridite finish; rd .168 ID, .325" OD, .020" thk; shakeproof type, internal teeth.	Mounts outer end bell cover.	6L72208
	WASHER, lock: steel, zinc pl, iridite finish; rd .142" ID, .275" OD, .018" thk; shakeproof type, internal teeth.	Mounts capacitor to end bell.	6L72206-9C
	WASHER, lock: steel, zinc pl, iridite finish; rd .0578 OD, .328" ID, $\frac{1}{16}$ " thk; split-ring type.	Mounts under rotor bearing retaining screw.	6L71005-12C
	GENERATOR CONTROL GROUP		
	BOARD, terminal: 3 double-screw type term.; $\frac{7}{16}$ " between centers of term.; molded phenolic board; $2\frac{1}{16}$ " lg x $1\frac{1}{8}$ " wd x $\frac{1}{2}$ " d o/a; four .177" dia mtg holes on $1\frac{3}{4}$ " x $2\frac{7}{64}$ " mtg/c; Howard B. Jones Co #3-141.	Mounts generator lead to generator control.	2Z9403.6
	CAPACITOR, fixed: Sig C type #CA-461; paper; 500,000 uuf $\pm 10\%$; 100 vdcw.	Suppression bypass.	3D462
	CAPACITOR, fixed: Sig C type #CA-448; paper; 100,000 uuf $\pm 10\%$; 100 vdcw.	Noise suppression.	3D448

CONTROL, generator: Sig C Generator Control C-890/U; p/o Sig C Power Unit PE-210-B; box and chassis; Motoresearch Co #6500, relay RPM #X530400, switch C-H #7675-K-3, term. strip Jones HB #3-141, binding post Superior Elec #DF30BC and DF30RC, ammeter Rol-Smith #MR26W050DCAA, shunt Rol-Smith MSA500, voltmeter Rol-Smith #MR26W030DCVV; Jmco #A-3936.

GASKET: synthetic rubber; 4 holes; sq 2" lg x 2" wd x $\frac{1}{16}$ " thk o/a; u/w Generator Control C-890/U; Jmco #08010.

GROMMET: rubber; .437" dia hole; $\frac{1}{4}$ " hole dia, $\frac{1}{16}$ " wd groove; $\frac{5}{8}$ " dia $\frac{3}{16}$ " thk; p/o Generator Control C-890/U; Motoresearch #D53-1.

GROMMET: rubber; $\frac{5}{8}$ " dia slot; $\frac{3}{8}$ " dia hole, $\frac{1}{16}$ " wd groove; $\frac{7}{8}$ " dia, $\frac{5}{16}$ " thk; p/o Generator Control C-890/U; Motoresearch #D53-2.

KNOB: bar type; black bakelite; $\frac{1}{4}$ " dia shaft; single #6-32 NCT-2 set screw; fine line marked; $1\frac{1}{4}$ " lg x $\frac{3}{4}$ " wd x $1\frac{1}{16}$ " d o/a; $\frac{1}{2}$ " d shaft hole; Rogan Bros Co #RB-41.

METER, ammeter: dc; JAN type MR26W50DCAA.

METER, voltmeter: dc; JAN type MR26W030DCVV.

NUT, hexagon: steel, zinc pl, cronak dip; #4-40 thd; $\frac{3}{32}$ " thk; $\frac{1}{4}$ " across flats.

NUT, hexagon: steel, zinc pl, cronak dip; #6-32 thd; $\frac{7}{64}$ " thk; $\frac{5}{16}$ " across flats.

NUT, hexagon: steel, zinc pl, cronak dip; #8-32 NCT-2; $\frac{1}{8}$ " thk; $1\frac{1}{32}$ " across flats.

Contains generator control components.

3H1098-890

Absorbs shock between generator control and loop frame.

3H2154-24

Prevents wires from rubbing on edges of panel cover.

3H2479-4

Prevents wires from rubbing on edges of panel base.

3H2479-5

Permits rotation of rheostat.

3H2678-3

Indicates amperage.

3F1050-47

Indicates voltage.

3F8030-32

Mounts ammeter and voltmeter to panel.

6L3604-40-4.4

Mounts terminal board to panel base.

6L3106-32.1S

Mounts solenoid lead harness to cover.

6L3108-32S.P

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	NUT, hexagon: steel, zinc pl, cronak finish; $\frac{1}{4}$ "-20 NCT-2; $\frac{3}{16}$ " thk; $\frac{7}{16}$ " across flats.	Mounts capacitor and armature relay to panel base.	6L3504-20Z
	RELAY, armature: SPST, normally open; 30 amp rating, closing voltage 3 v dc, withstands 5 v continuously; silver contacts; 2 concentric windings, 5 v dc, $\frac{1}{4}$ amp on operating current, 10 amp on release current, 20 ohm inductive winding, 5 ohm noninductive winding, insulated; solder lug term. on coils, silver contacts riveted; $3\frac{3}{4}$ " lg x $2\frac{13}{16}$ " wd x $2\frac{1}{4}$ " h o/a; mts w/two $\frac{1}{4}$ "-20 NCT RH mach screws on $1\frac{7}{8}$ " mtg/c; fast acting; dustproof cover; RBM #9776-0.	Charging circuit relay.	2Z7599-102
	RESISTOR, variable: wire wound; JAN type RP151FD120KK; 12 ohm $\pm 10\%$; 50 w, 300° hot spot temp rise.	Regulates battery charging rate.	3RP3602
	SHUNT, meter: brass and laminated phenolic board; 50 mv, 50 amp; 2" lg x $1\frac{1}{4}$ " wd x $1\frac{7}{16}$ " h o/a; mts/w 2 mtg holes $\frac{1}{8}$ " dia on $\frac{7}{8}$ " mtg/c.	Calibrates meter.	3F33932-50-2
	SWITCH, toggle: 4PDT; 5 amp, 30 vdc; bakelite body, steel cover, chrome pl; $1\frac{7}{16}$ " wd x $1\frac{5}{16}$ " lg x $1\frac{7}{32}$ " d o/a; toggle type, $1\frac{5}{64}$ " dia x $1\frac{1}{16}$ " lg; momentary contact, closed only when lever is held in position; solder lug term.	Starting switch.	3Z9849.238
	SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #4-40 thd; $\frac{1}{4}$ " lg; $\frac{1}{4}$ " lg thd;	Mounts cover to panel.	6L6440-4.49S
	SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #4-40 thd; $\frac{1}{2}$ " lg; $\frac{1}{2}$ " lg thd;	Mounts ammeter and voltmeter to panel.	6L6440-8.49S

SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #4-40 NCT-2; $\frac{5}{8}$ " lg; $\frac{5}{8}$ " lg thd;	Mounts meter shunt to generator control base.	6L6440-10.1S
SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #6-32 thd; $\frac{1}{2}$ " lg; $\frac{1}{2}$ " lg thd.	Mounts terminal board to base of generator control.	6L6632-8.49S
SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #8-32 thd; $\frac{1}{2}$ " lg; $\frac{1}{2}$ " lg thd.	Mounts governor lead harness to cover.	6L6832-8.49S
SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; #8-32 NCT-2; $\frac{5}{16}$ " lg; $\frac{5}{16}$ " lg thd.	Mounts generator control to frame.	6L6832-5.87
SCREW, machine: slot drive; RH; steel, zinc pl, cronak dip; $\frac{1}{4}$ "-20 NCT-2; $\frac{1}{2}$ " lg; $\frac{1}{2}$ " lg thd.	Mounts capacitors and armature relay to generator control base.	6L7920-6-8.49S
WASHER, lock: steel, zinc pl, cronak dip; rd .123" ID, .265" OD, .016" thk; shakeproof type, internal teeth.	Mounts ammeter and voltmeter to panel.	6L72204C
WASHER, lock: steel, zinc pl, cronak dip; rd .123" ID, .255" OD, .016" thk; shakeproof type; external teeth.	Mounts cover to mounting panel and meter shunt to base.	6L7204C
WASHER, lock: steel, zinc pl, cronak dip; rd .142" ID, .275" OD, .018" thk; shakeproof type, internal teeth.	Mounts terminal board to panel base.	6L72206-9C
WASHER, lock: steel, zinc pl, cronak dip; rd .168" ID, .370" OD, .020" thk; shakeproof type, external teeth.	Mounts generator control to loop frame.	6L71108C
WASHER, lock: steel, zinc pl, cronak dip; rd .176" ID, .510" OD, .025" thk; shakeproof type, external-internal teeth.	Mounts solenoid lead harness to cover.	6L72008-14P
WASHER, lock: steel, zinc pl, cronak finish; rd .256" ID, .466" OD, .025" thk; shakeproof type, internal teeth.	Mounts capacitors and relay to panel base.	6L72214

2. Identification Table of Parts for Power Unit PE-210-B (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
	WIRING ASSEMBLY: shielded cable w/2 Sherman #45 term. one end, 2 Stak-on #B-36G and 1 Stak-on #C-77 term. other end, 2 lead wires w/1 gnd wire connected to shielding; Motoresearch #6520; Jmco #A-3957.	Lead from generator control to solenoid.	3E10000-15
	TOOL GROUP		
	ABRASIVE, sheet: class A ream flint finishing; grit size 4/0.	For cleaning breaker points and commutator.	6Z7500-0000.2
	BRUSH, cleaning: hammer shape; wire bristles; 5½" lg x 2½" wd x ¼" thk.	For cleaning unit and removing carbon.	6Z1415-3
	GAGE SET, thickness: flat type; 6 leaves .025", .015", .020", .018", .022", and .030".	To check clearances.	6Q5706-3
	GAGE, spark timing.	To time ignition.	6Q45684
	PULLER, flywheel: knock-off type.	Removal of flywheel.	6R7395-2
	SCRAPER, carbon.	Remove carbon from cylinder head, ports, and piston.	6R14010-1
	SCREW DRIVER: for slot drive screws; 4" lg blade; ¼" ed bit.		6R15610

WRENCH, socket: special double-end w/sliding handle; $2\frac{7}{32}$ " and $1\frac{3}{32}$ " openings.

Removal of spark plug and adapter.

6R55526-32

WRENCH: double open-end; $\frac{3}{8}$ " and $\frac{7}{16}$ " openings.

6R55514-12

WRENCH: double-end hex. socket; $\frac{5}{16}$ " and $\frac{7}{16}$ " openings.

6R55510-14.1

WRENCH: double-end box; $\frac{1}{2}$ " and $\frac{9}{16}$ " openings.

6R59347.2

MISCELLANEOUS GROUP

BAG, canvas: olive drab.

Cover for unit.

3H161

BAG, tool: olive drab.

Container for tools.

6Q2104-9.2

CABLE ASSEMBLY: Sig C Cord CD-1334; 72" lg, excluding terminations.

Connects battery to generator for charging.

3E1999-334

NUT, hexagon: steel, zinc pl, cronak dip; 10-24 NCT-2; $\frac{1}{8}$ " thk; $\frac{3}{8}$ " across flats.

Mounts handle to canvas cover

6L3610-24.3

ROPE ASSEMBLY: cotton sash cord; $\frac{1}{4}$ " dia.

Starting rope.

3H1922/R25

WASHER, lock: steel, zinc pl, cronak dip; rd .194 ID, .353" OD, .068" thk; split-ring type.

Secures carrying handle fastenings.

6L71003-23

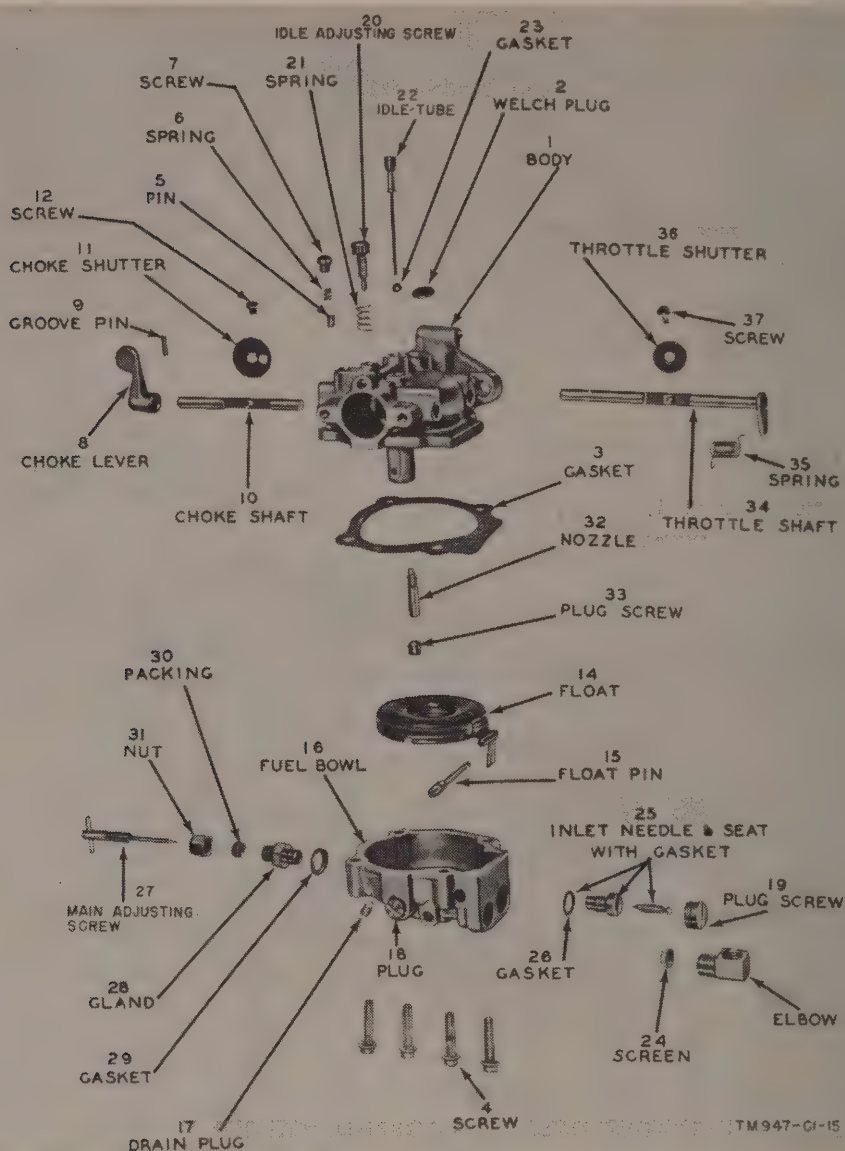


Figure 51.1. Power Unit PE-210-B, carburetor, exploded view.

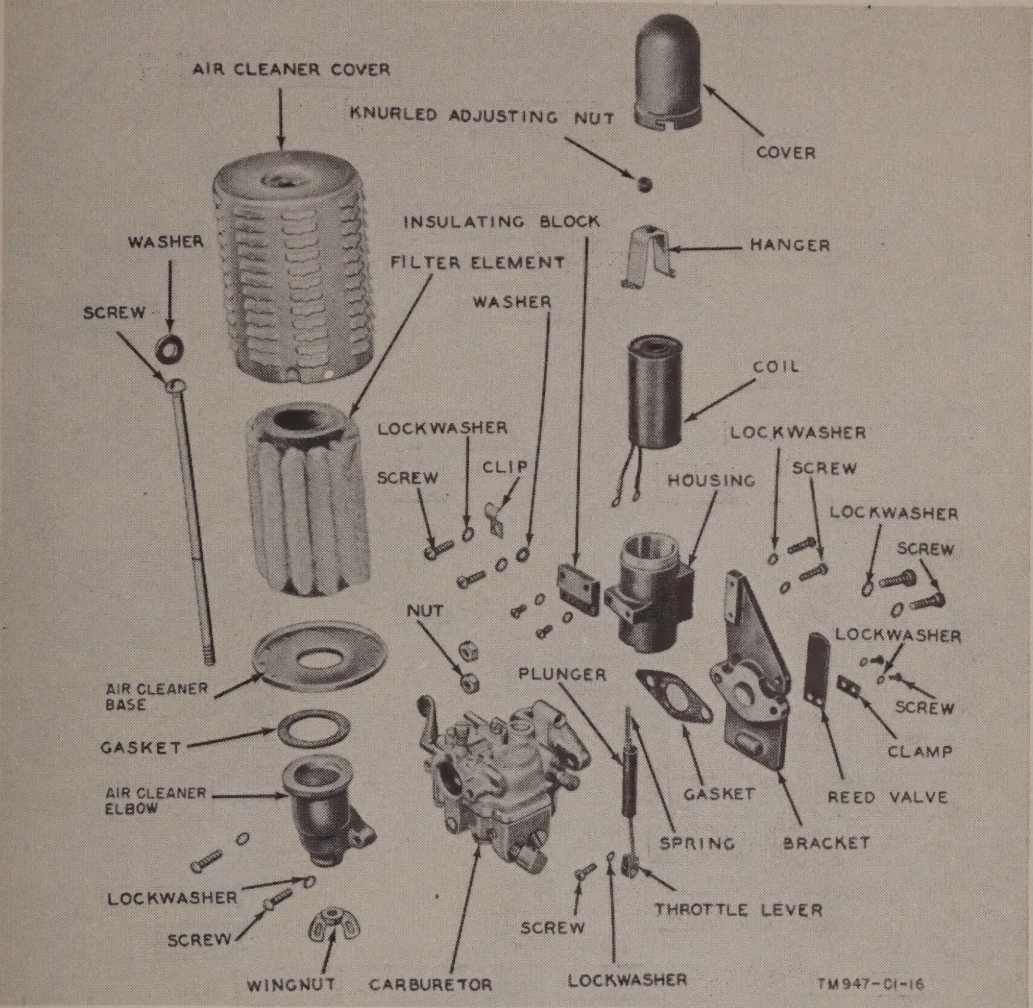


Figure 53.1. Power Unit PE-210-B, governor, carburetor, and air cleaner, exploded view.

